Embassy of Italy
Manila

Philippines Energy Sector Guide

Prepared for: **Embassy of Italy in Manila**

DESIGNED BY

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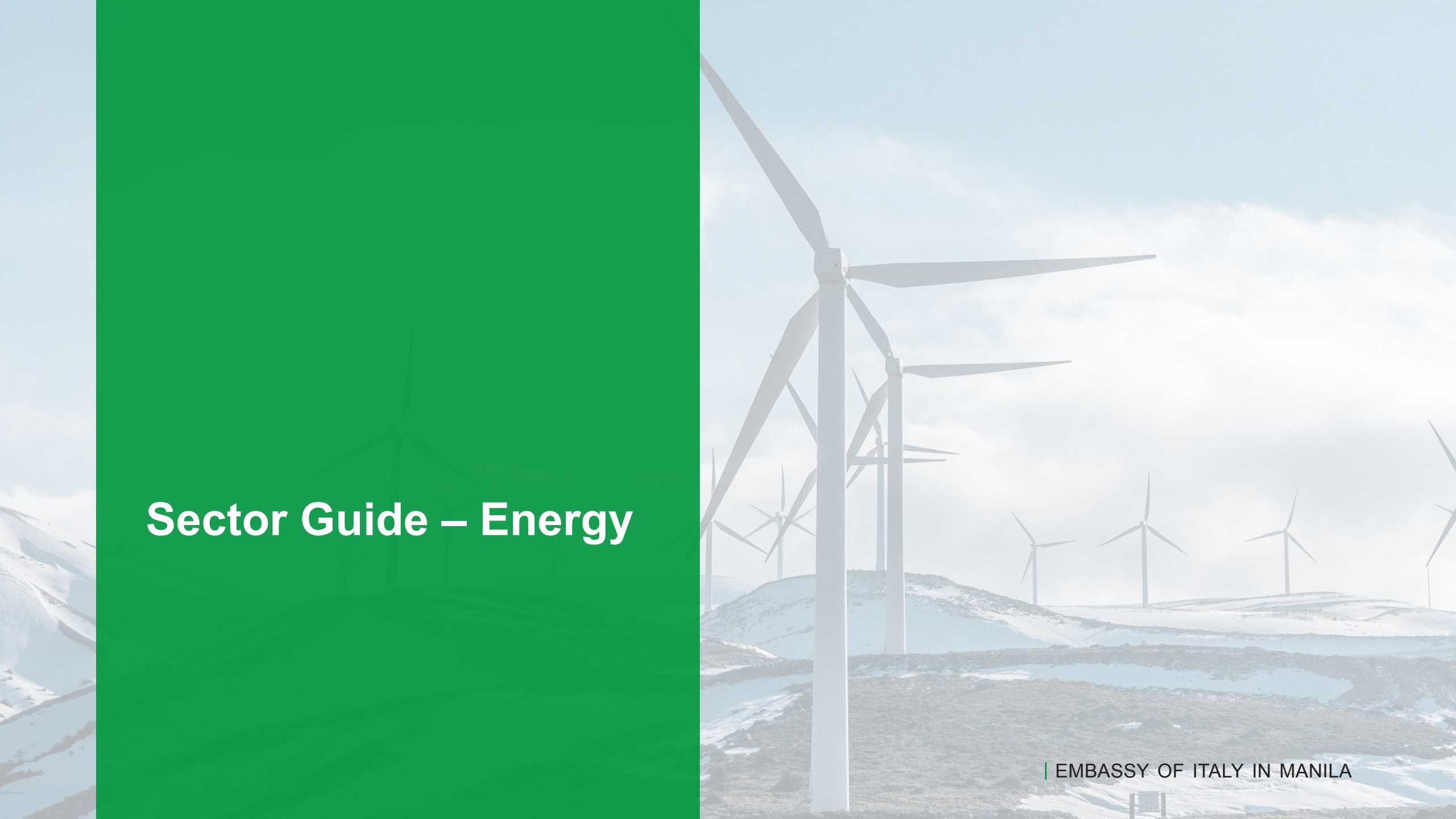
Your Partner for Growth in Asia

Sector Guide – Energy



EMBASSY OF ITALY IN MANILA

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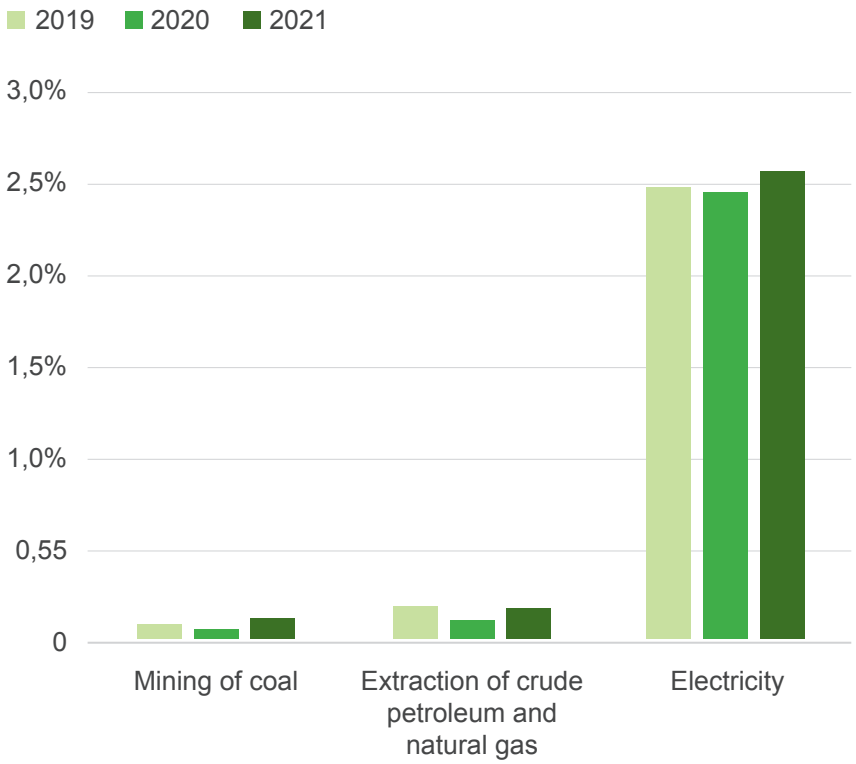
- Imports (from Italy to the Philippines) and Custom Duties for major products

Sector Overview

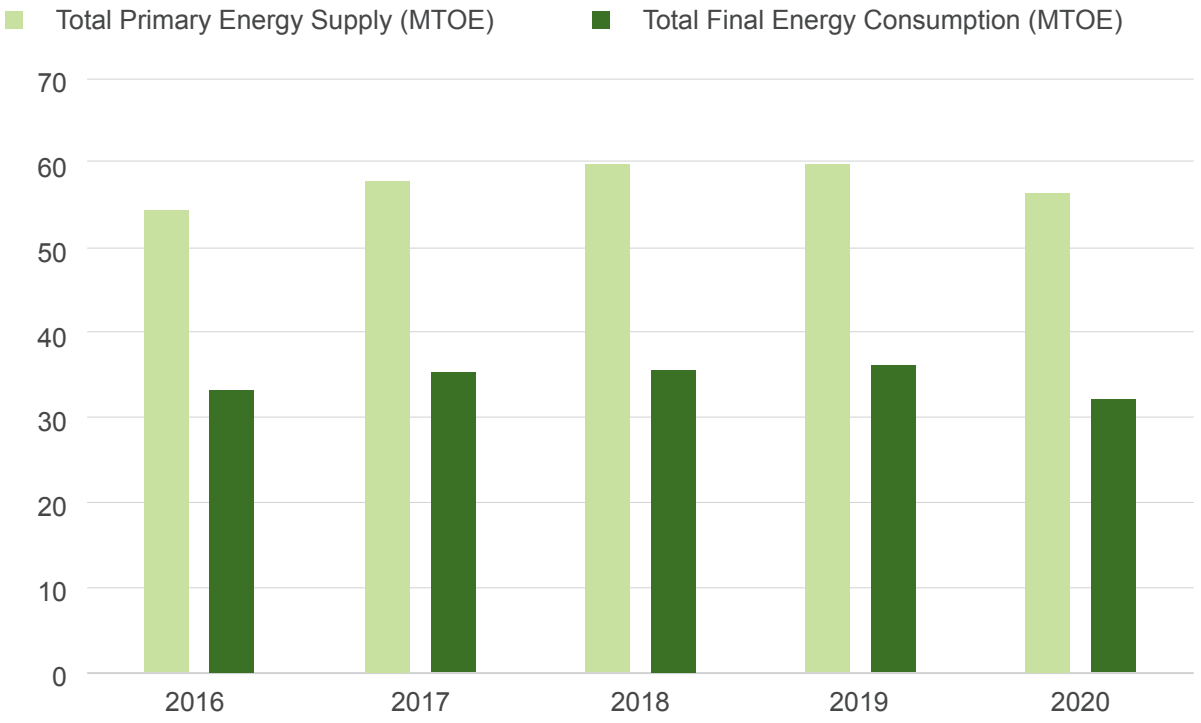
Philippines Energy - Sector Overview

The Philippines energy sector contributed to nearly 3% of the country's GDP every year, with the largest segment being electricity businesses.
The Philippines is a net energy importer despite low consumption levels relative to its Southeast Asian neighbors. Currently, it is only self-sufficient for 52.6% of its energy consumption.

Gross value added as percentage of GDP



Primary Supply vs Final Consumption of Energy in the Philippines

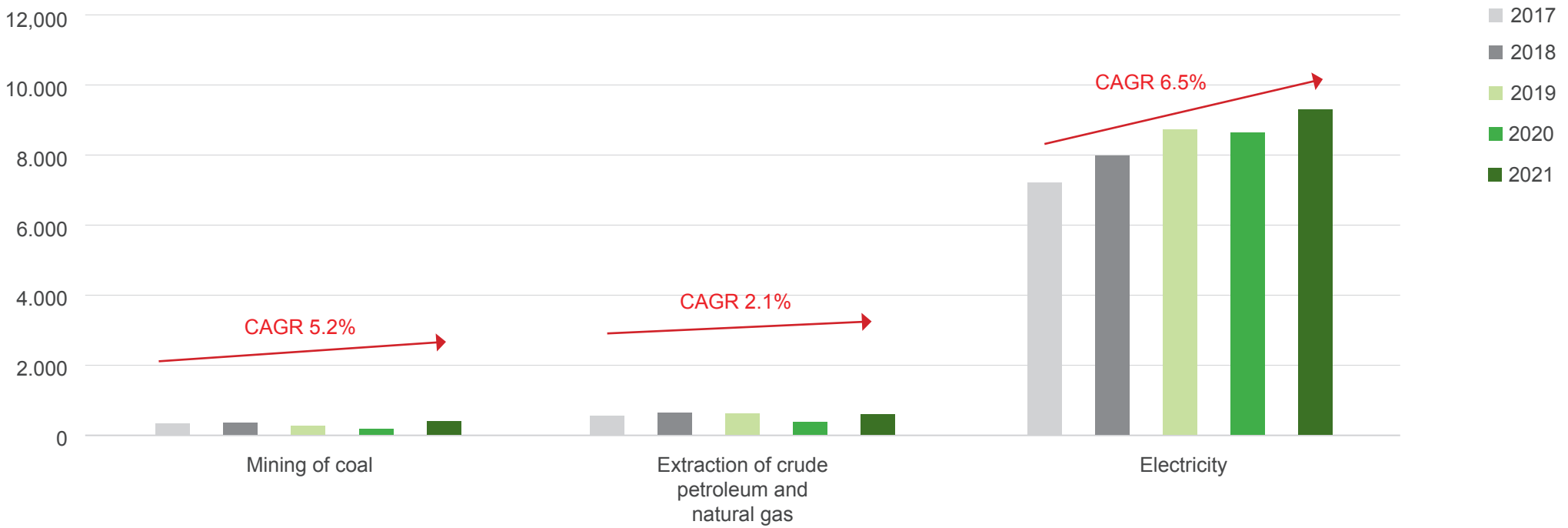


Philippines Energy - Sector Gross Value Added

In here, we have highlighted the gross value added in each segment of the energy sector.

- Businesses operating in **electricity** contributed the greatest share to the country's gross value added, and also experienced the highest CAGR during 2017 – 2021 at 6.5%.
- Other segments **including extraction of petroleum and natural gas**, and **mining of coal** have relatively lower gross value added at EUR620.7 million, and EUR417.7 million in 2021.

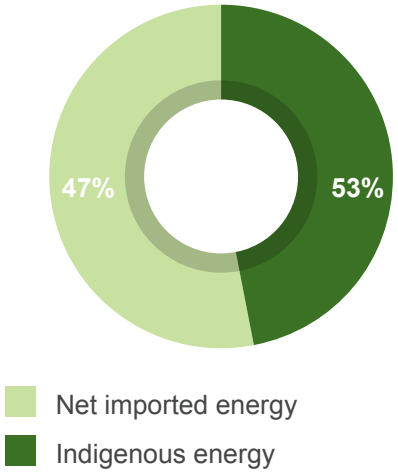
Gross Value Added in each segment (current Euro millions)



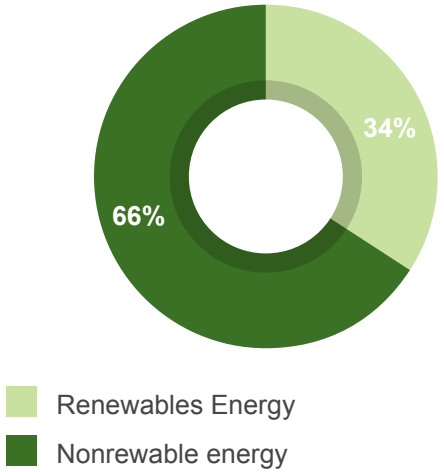
Philippines Energy - Energy Supply

- The country's total primary energy supply in 2020 reached 52.6 MTOE. **Coal** was the major source of supply which accounted for 30.7% in the total energy supply, followed by **oil** and **geothermal**, with 29.2% and 16.4%, respectively.
- Total indigenous energy production reached 29.7 MTOE, bringing energy self-sufficiency to 52.6% during the period
- The country produces oil, natural gas, coal, and renewable energy.
- Geothermal, hydropower, and other renewable sources account for a significant share of electricity generation.

Total Primary Energy and Self-Sufficiency Level, 2020 (kTOE)



Total Primary Energy, 2020 (kTOE)

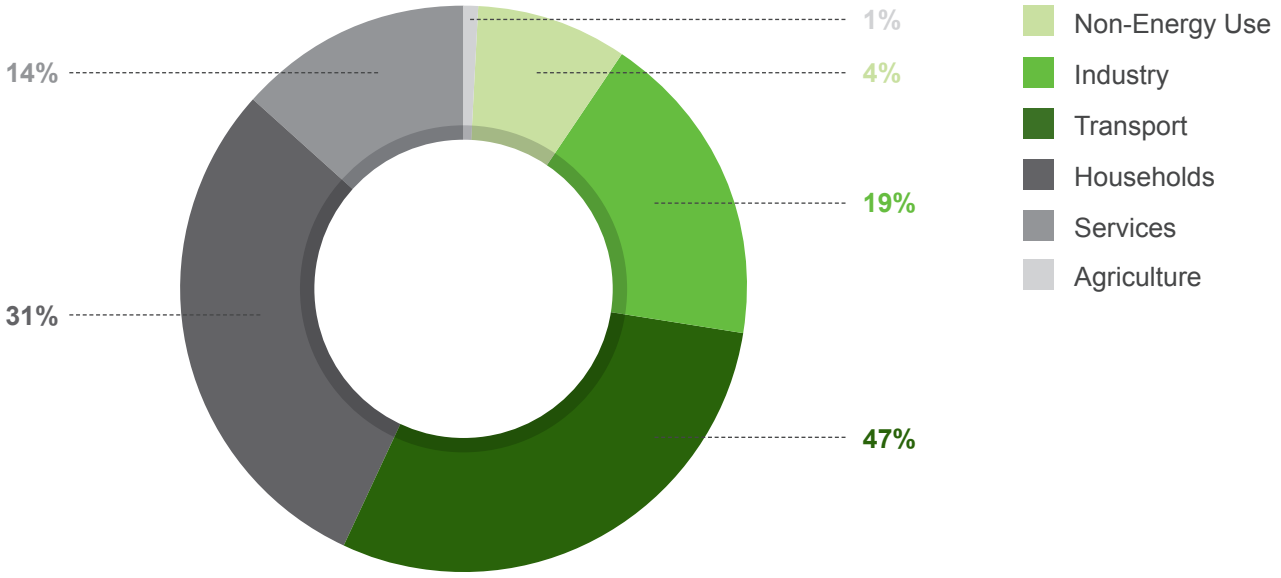


Total Primary Energy and Self-Sufficiency Level			
In kTOE	**2019**	**2020**	**GR**
Indigenous Energy	30,906.2	29,675.5	-4.0%
Oil	522.6	456.3	-12.7%
Natural Gas	3,626.0	3,288.3	-9.3%
Coal	7,257.9	6,835.7	-5.8%
Hydro	1,997.9	1,1790.4	-10.4%
Geothermal	9,192.4	9,249.2	0.6%
Biomass	7,735.7	7,563.2	-2.2%
Wind	89,6	88.3	-1.5%
Solar	107.1	118.0	10.2%
Biofuels	376.9	286.1	-24.1%
Net Imported Energy	28,945.8	26,691.6	-7.8%
Oil	18,531.9	15,996.9	-13.7%
Coal	10,223.7	10,500.3	2.7%
Biofuels	190.2	194.5	2.2%
Total Energy	**59,852.0**	**56,367.2**	**-5.8%**
Renewable Energy (RE)	**19,689.9**	**1,289.7**	**-2.0%**
Clean Energy (RE + Natural Gas)	**23,315.9**	**22,578.0**	**-3.2%**
Self Sufficiency (%)	**51.6**	**52.6**	

Philippines Energy - Energy Consumption

- In terms of demand, the country's total final energy consumption in 2020 was recorded at 32.4 million tonnes of oil equivalent (MTOE).
- Amongst the fuels, **oil** constituted the largest share at 49.5%, which can be attributed to transport sector fuel demand. Others, (primarily **electricity** and **biomass**, which is largely consumed in residential use), closely followed with shares of 22.1% and 21.8%, respectively.
- On a per sector basis, **transport** has been the largest single-sector user of energy, accounting for 30.3% of the total demand, while industry is at 19.2%. Others collectively (most prominently residential, as well as commercial, and agriculture, forestry and fishery make up 46.5%).

Total Final Energy Consumption 2020, by Sector (kTOE)

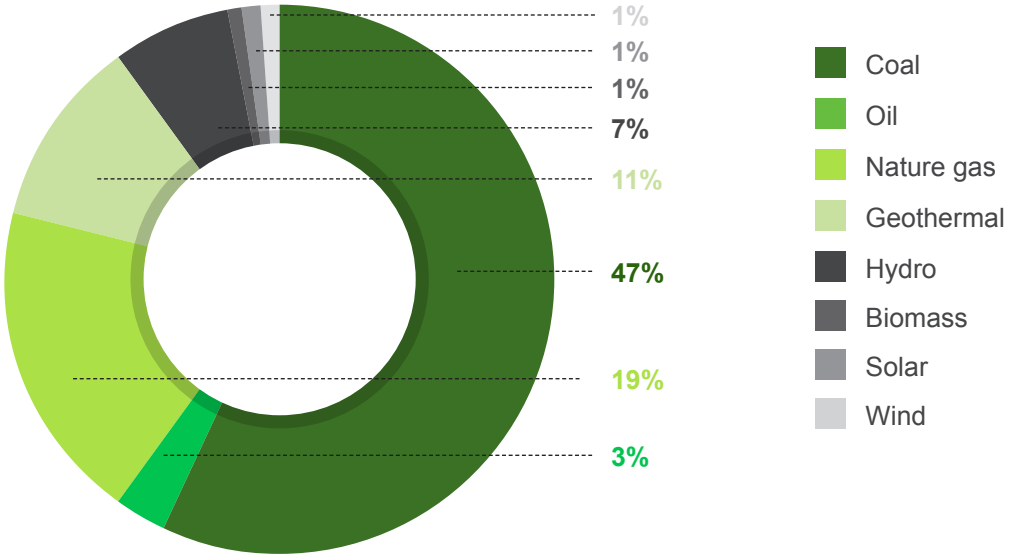


Philippines Energy - Power Supply

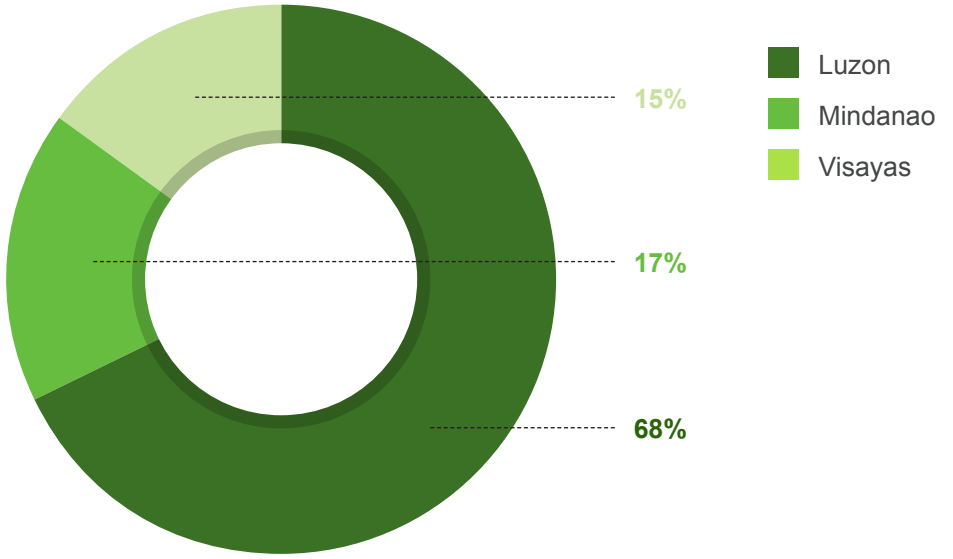
- Along with coal, natural gas contributed about three quarters of the total power generated in the Philippines, which was primarily supplied by the Malampaya offshore gas field.

- The Philippines is divided into three electrical grids, one each for Luzon, the Visayas and Mindanao.

Power Generation in 2020, by Source (GWh)



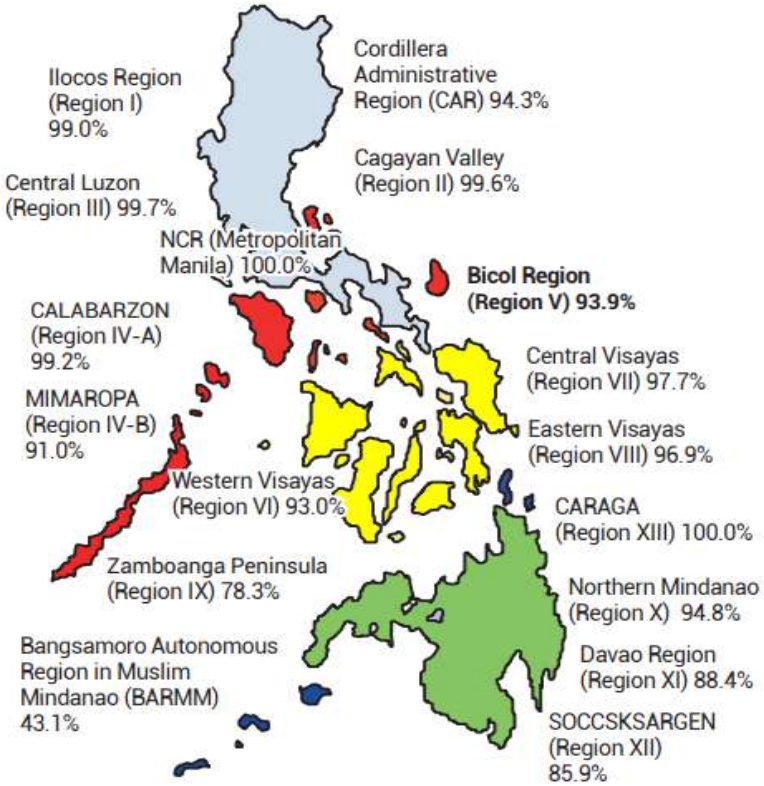
Power Generation in 2020, by Grid (GWh)



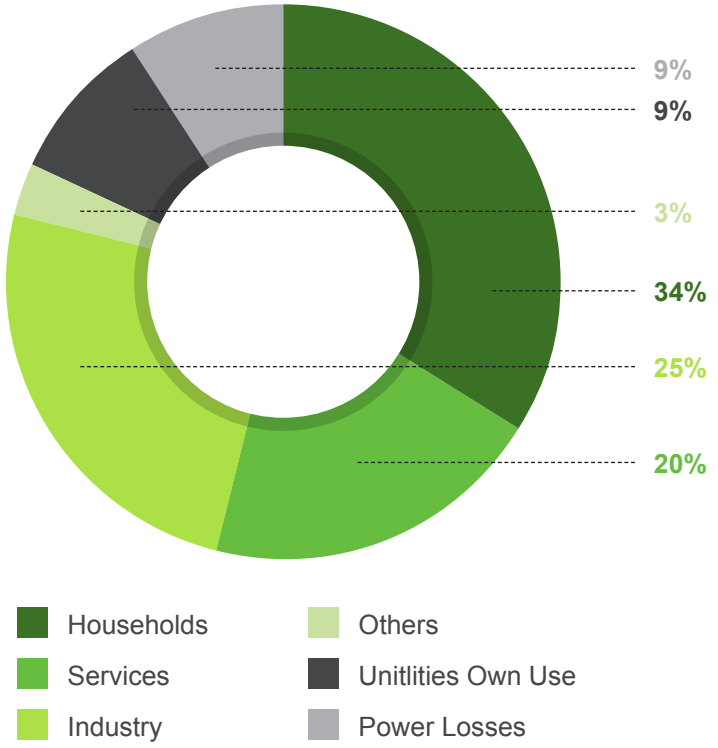
Philippines Energy - Power Consumption

- The regional household electrification level improved significantly and reached 94.5% in 2020
- **Households consumed** the largest share of power in the Philippines at 34% of electricity consumption, followed by **industrial sector** at 25% and **services sector** at 20%.
- Power tariffs in the Philippines now average between PHP 9 to PHP 10 per kWh (EUR 0.16 to EUR 0.18 per kWh) in the main grid—among the highest in Asia.

Regional Household Electrification Level



Electricity Consumption in 2020, by Sector (GWh)



Philippines Energy - Growth Drivers

- A major share of energy consumption is attributed to residential segment. Thus, the market will be driven by the large and **increasing population** of the country, which is projected to exceed 115 million in 2025.
- A rapid growing economy, especially in the **manufacturing, retail, and infrastructure industries**, will fuel the growth of the energy sector in the Philippines.
- Thanks to favorable geographical location, the Philippines possesses great marginal power reserves, which presents huge potential for the exploration and development of new energy projects, especially in renewable energy. The Philippines is estimated to have an untapped resource potential of **2,600 MW in geothermal**, **70,000 MW for wind energy** and over **13,000 MW for hydropower.**
- **Development programs and reforms** by the government support the growth of the energy sector, especially in the renewable segment. The Department of Energy is pursuing initiatives to facilitate investment in this field. Recently, Executive Order No. 30, a series of 2017 created the Energy Investment Coordinating Council (EICC) which ensures a simpler and faster process with the removal of existing hurdles to private-sector investment

Sector specific regulations

Philippines Energy - Sector Regulations - A

LAWS

The main laws governing the energy sector are as follows:

- **The 1987 Constitution**
- **Electric Power Industry Reform Act 2001 (EPIRA):** The EPIRA regulates the entire Philippine electric power industry and its participants. It liberalized the power market and now private companies hold over 60% of the market share.
- **Renewable Energy Act 2008:** The Act provides for the overall regulatory framework to promote accelerated advancement of renewable energy resources into useful forms of energy. The Act outlined policy mechanisms, including net metering, feed-in tariff (FIT) system, Renewable Portfolio Standards for on-grid and off-grid areas (RPS), the Green Energy Option Programme (GEOP) and the Renewable Energy Market (REM), among others.
- Other significant considerations for energy developers in the Philippines are laws relating to land ownership and use or rights, the Indigenous Peoples Rights Act and other related laws, environmental laws, and local government laws and regulations.

Philippines Energy - Sector Regulations - B

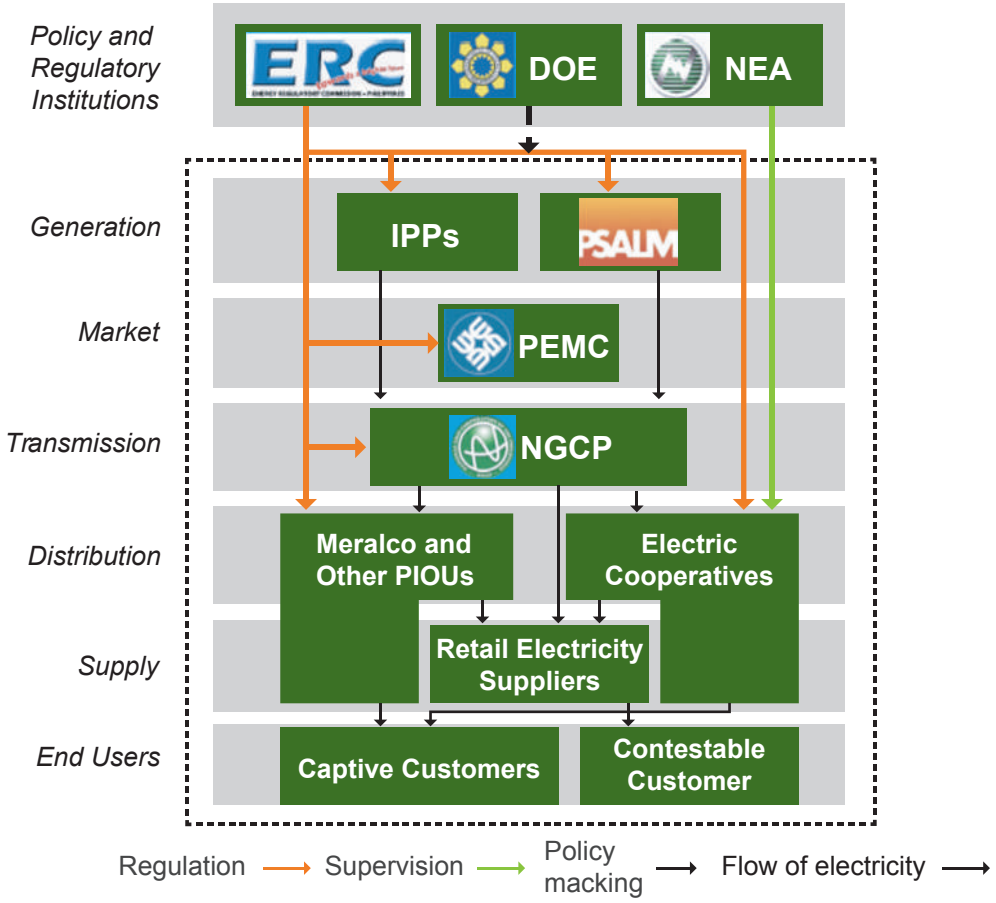
REGULATORY BODIES

- The apex body for governing and developing policy within the country's power sector is the **Department of Energy (DOE).**
- The **Energy Regulatory Commission (ERC)** is an independent body responsible for regulating the power industry and approving bilateral power supply agreements.
- The **Philippine Competition Commission** is mandated to promote free and fair competition across all sectors including energy, can penalize monopolistic and anticompetitive behavior, and has the authority to approve asset transactions in the power sector.

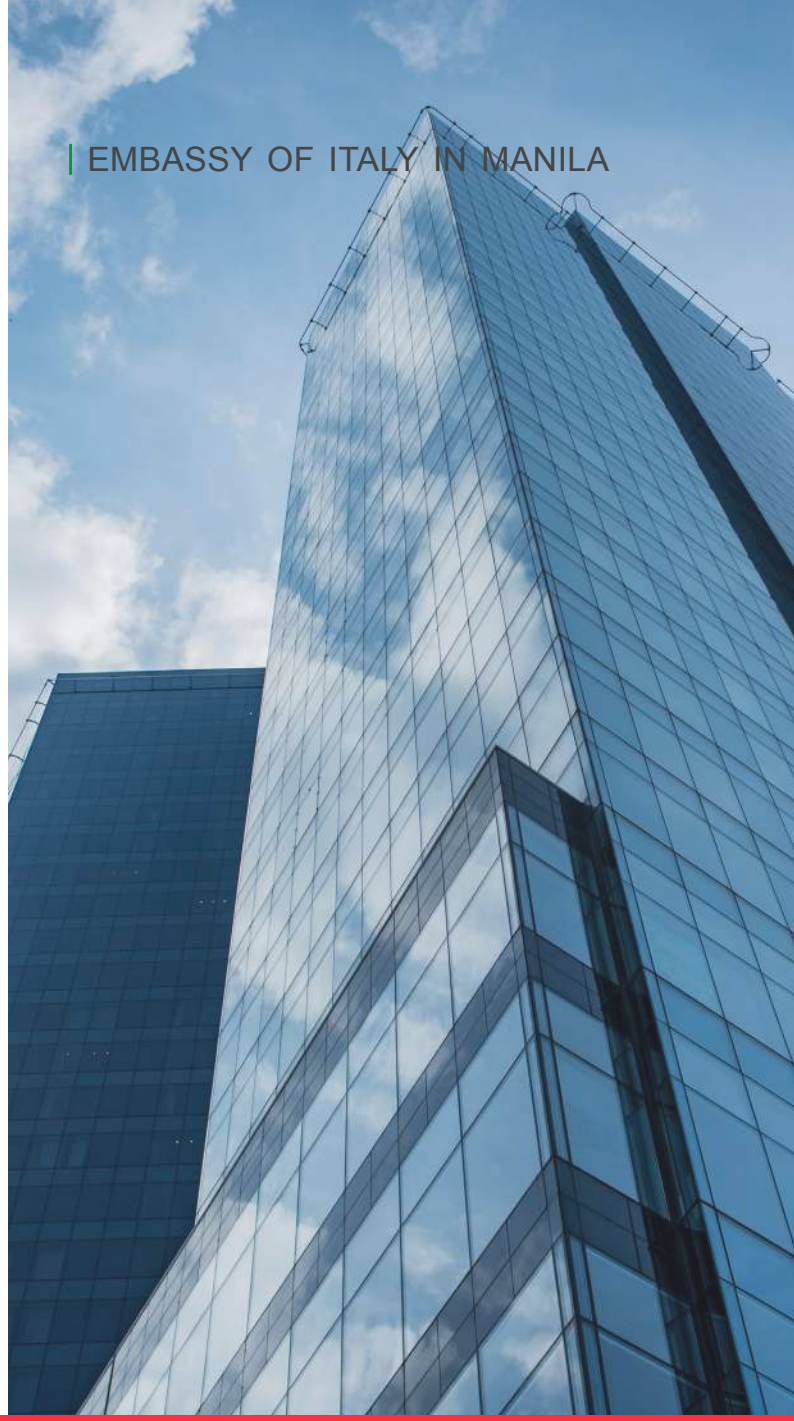
OTHER STAKEHOLDERS

- The **National Electrification Administration (NEA)** is a government-owned and controlled corporation responsible for promoting full electrification in the Philippines with a focus on the numerous electric cooperatives that tend to serve less developed areas.
- The **Philippine National Oil Company (PNOC)** was tasked with developing the country's energy resources including oil, gas, coal, geothermal, and other renewables.

Other stakeholders include the Department of Environment and Natural Resources, National Resources Water Board, Philippines Electricity Market Corporation



Philippines Energy - Sector Regulations - C



GENERATION
The EPIRA clarifies that power generation is not considered a public utility operation, so a national franchise to operate as a power generation company is not required. Under the EPIRA rules, a generation company must secure a certificate of compliance (COC) to operate facilities used in the generation of electricity from the Energy Regulatory Commission (ERC). The COC must be secured from the ERC before commercial operations of a new generation facility, and renewed periodically (every five years). Notably, the EPIRA requires power generation companies or their holding companies to offer and sell to the public a portion of not less than 15% of their common shares of stock.

TRANSMISSION
Connection to the grid is required for generation companies to inject power into the grid, the high-voltage backbone system of interconnected transmission lines, substations and related facilities to convey bulk power. Currently, the National Grid Corporation of the Philippines (NGCP) is responsible for operating, maintaining and developing the country's state-owned power grid. Before connecting to the grid, several steps must be accomplished, including conducting a grid impact study, executing a connection agreement with the NGCP, and approval from the ERC of the proposed connection.

DISTRIBUTION
To provide electricity to the captive market, a generation company must enter into a power supply agreement (PSA) with a DU for the supply of capacity and/or energy intended for the DU's captive market. A PSA is awarded to the winning generation company following a successful, transparent and competitive selection process. The rate to be charged under the PSA is subject to approval by the ERC.

Philippines Energy - Sector Regulations - D

RETAIL ELECTRICITY SUPPLY
Under the retail competition and open access regime, electricity end users meeting certain thresholds are considered part of the contestable market allowed to source their electricity requirements from entities duly licensed as an RES by the ERC. Unlike in PSAs with DUs, which are subject to rate approval by the ERC, the rates chargeable by an RES under its retail supply agreements are not regulated by the ERC.

THE WHOLESALE ELECTRICITY SPOT MARKET
is a centralized venue for buyers and sellers to trade electricity as a commodity where prices are determined based on actual use (demand) and availability (supply). The market provides the mechanism for identifying and setting the price of actual variations from the quantities transacted under contracts between sellers and purchasers of electricity. The market is operated by the Independent Electricity Market Operator of the Philippines and governed by the Philippine Electricity Market Corporation, primarily through the corporation's board of directors and the market's governance committees.

Philippines Energy - Sector Regulations - E

RENEWABLE ENERGY

The Renewable Energy Act requires all developers to apply for a renewable energy service contract a service agreement with the Republic of the Philippines, through the Department of Energy (DOE), with a 25-year term, extendable to another 25 years, in which the developer is given the exclusive right over a particular area for exploration and development of renewable energy resources. The renewable energy service contract serves as the foundation for the developer to build a renewable energy power plant in the Philippines.

The Renewable Energy Act offers a host of incentives for eligible renewable energy developers. The fiscal incentives include:

- Seven-year income tax holiday;
- Duty-free importation of renewable energy machinery, equipment and materials;
- Special realty tax rates on equipment and machinery;
- Net operating loss carry-over;
- 10% corporate income tax rate after the income tax holiday;
- Accelerated depreciation;
- 0% value-added tax rate on renewable energy sales and purchases;
- Cash incentive for missionary electrification;
- Tax exemption of carbon credits;
- Tax credit on domestic capital equipment and services; and
- Exemption from the universal charge provided for under the Electric Power Industry Reform Act (EPIRA).

FDI regulations

Philippines Energy - FDI Regulations

- Republic Act 7042, also known as the "**Foreign Investments Act of 1991**," (FIA), is a law regulating foreign investments in the Philippines. This act allows foreign investors to invest up to 100% equity in domestic market enterprises, but also sets restrictions via the **Foreign Investment Negative List (FINL)** which is a list of areas of economic activity where foreign ownership is restricted or limited.
- The latest 12th FINL has the **list of sectors** that does not allow foreign equity at all to sectors that restrict foreign equity between 25% to 40% depending on several factors.
- **One hundred percent (100%) foreign equity may be allowed in all areas of investments** under the Foreign Investments Act (FIA), except those included in the Foreign Investment Negative List (FINL).
- **Energy sector is subject to certain restriction for foreign investment.** The FINL stipulates areas in which foreign ownership is limited to 40%.

» *Exploration, development and utilization of natural resources.* The 1987 Constitution, the fundamental law in the Philippines, adopted the Regalian Doctrine, or jura regalia, which means that all lands of the public domain, waters, minerals, coal, petroleum and other mineral oils, all forces of potential energy, fisheries, forests or timber, wildlife, flora and fauna, and other natural resources, including renewable energy resources, are owned by the state. The exploration, development and utilization of these natural resources shall be under the full control and supervision of the Philippine government. The state may directly undertake such activities or it may enter into coproduction, joint venture or production-sharing agreements with Filipino citizens or corporations at least 60% of whose capital is owned by such citizens. Accordingly, a foreign investor that proposed to engage in the business of developing renewable energy resources in the Philippines was limited to a maximum of 40% voting capital. However, in October 2022, the Department of Justice issued a legal opinion stating that **renewable energy investments are not subject to the 60:40 foreign equity limitation.** This policy change therefore presents greater opportunities and is expected to pave the way for more foreign investment in this sector.

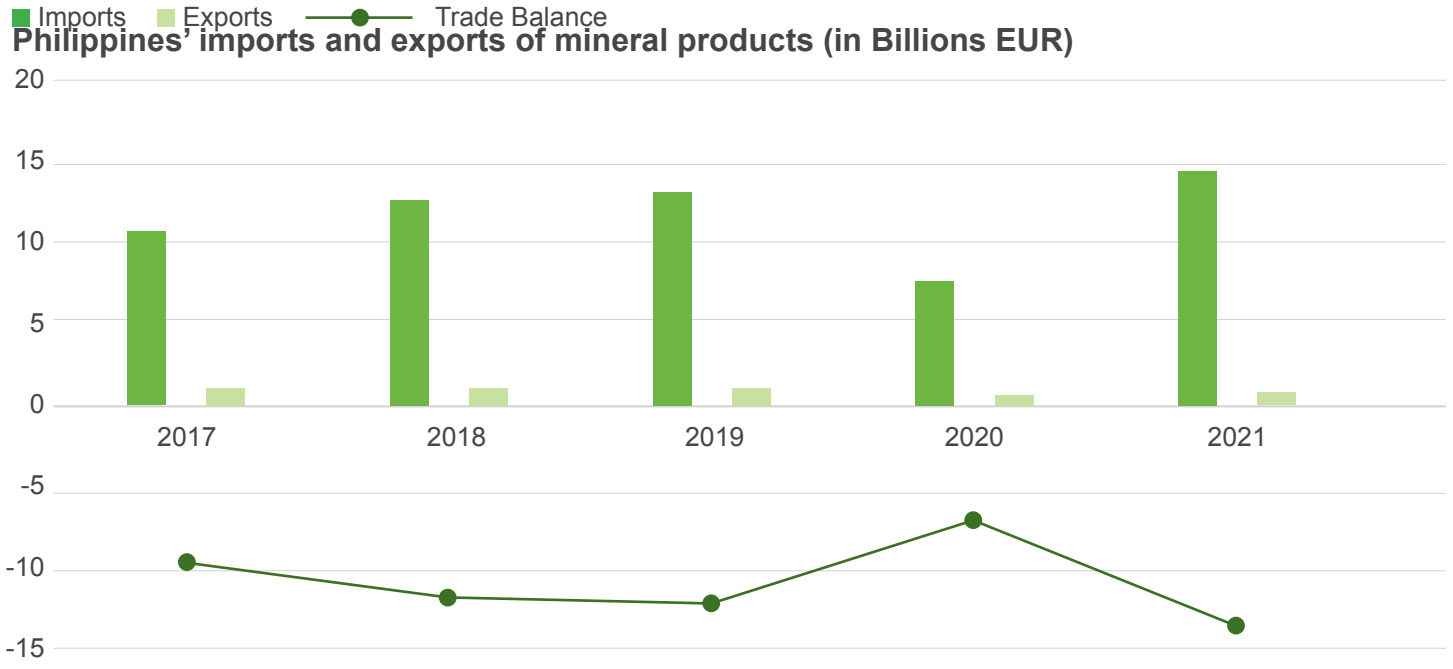
» *Electricity distribution and electricity transmission as operation of public utilities.* Only firms that are at least **60% owned by Filipinos** are given the authorization, certificate, and franchise to operate as a public utility.

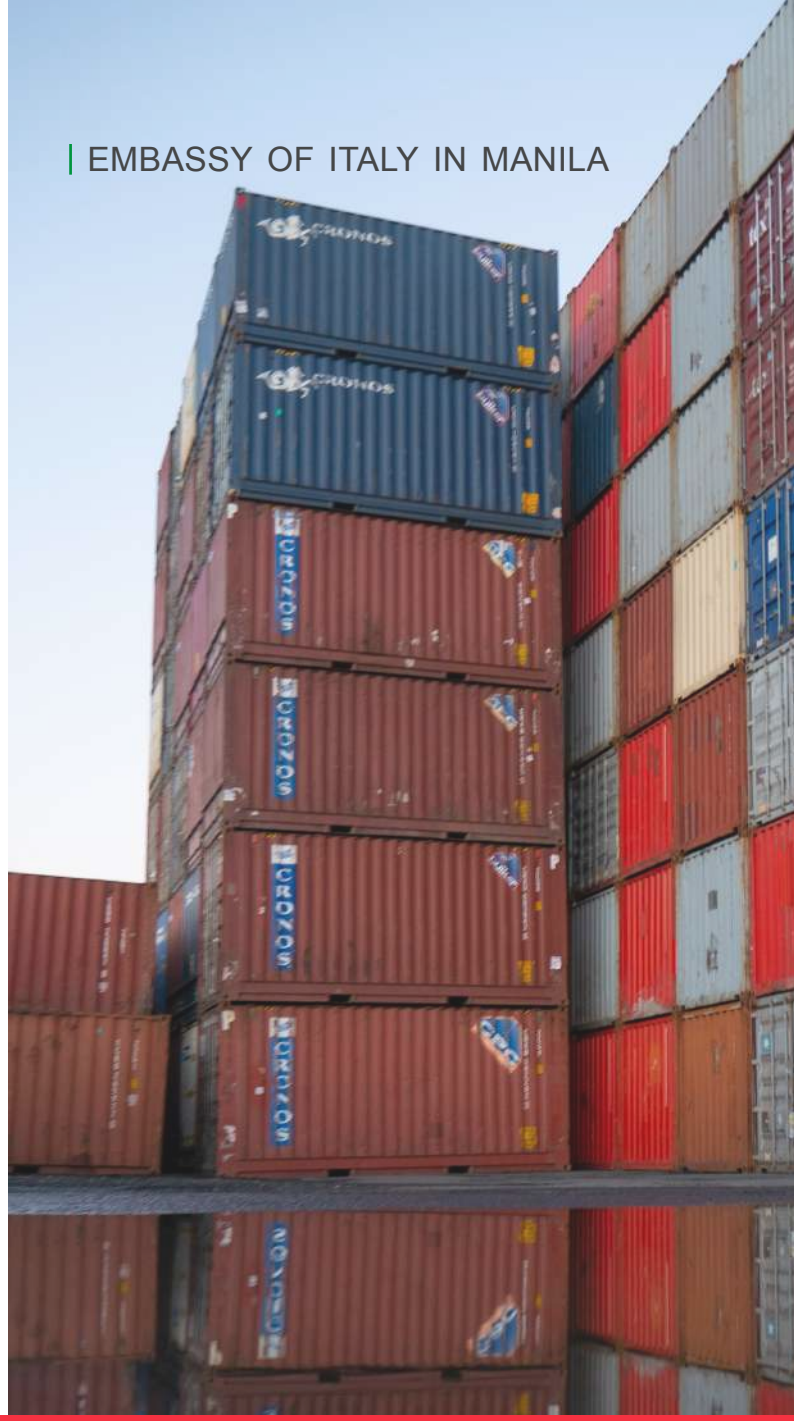
» Meanwhile, *thermal power projects such as coal or natural ga*s are not subject to foreign ownership restrictions

Imports and Exports

Philippines Energy - Imports and Exports

As per the Philippine Standard Commodity Classification (PSCC), DSA has focused on the below product group as per classification for trade data;
“HS CHAPTER 27: MINERAL FUELS, MINERAL OILS AND PRODUCTS OF THEIR DISTILLATION; BITUMINOUS SUBSTANCES; MINERAL WAXES”



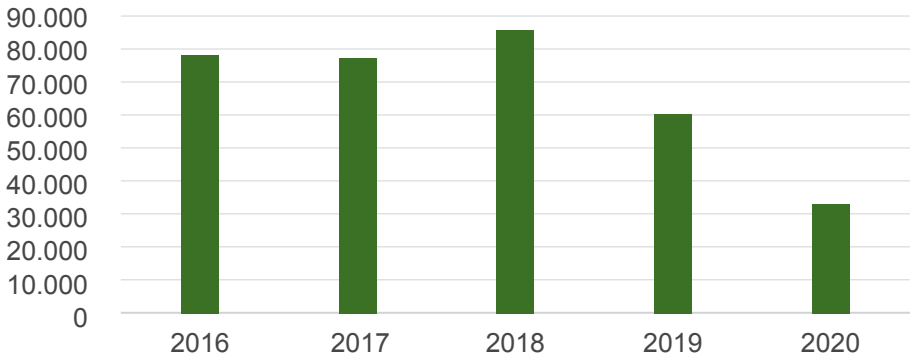


Philippines Energy - Imports of Crude Oil

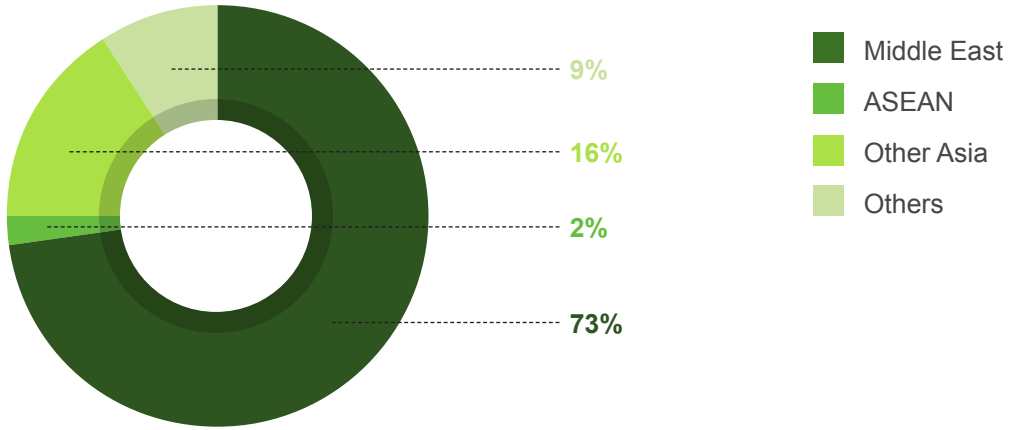
The country's imports of crude oil have decreased significantly since 2018. In 2020, the Philippines imported 32,942 MB, which was less than a half of the imported volume in 2018 at 85,660 MB.

Major suppliers of crude oil to the Philippines have been:
- Middle East countries (Saudi Arabia, Kuwait, UAE, Qatar)
- ASEAN (Malaysia, Singapore)
- Other Asian countries (Russia, South Korea, Taiwan)
- Others (Nigeria, Brazil, the US)

Import of crude oil (MB)



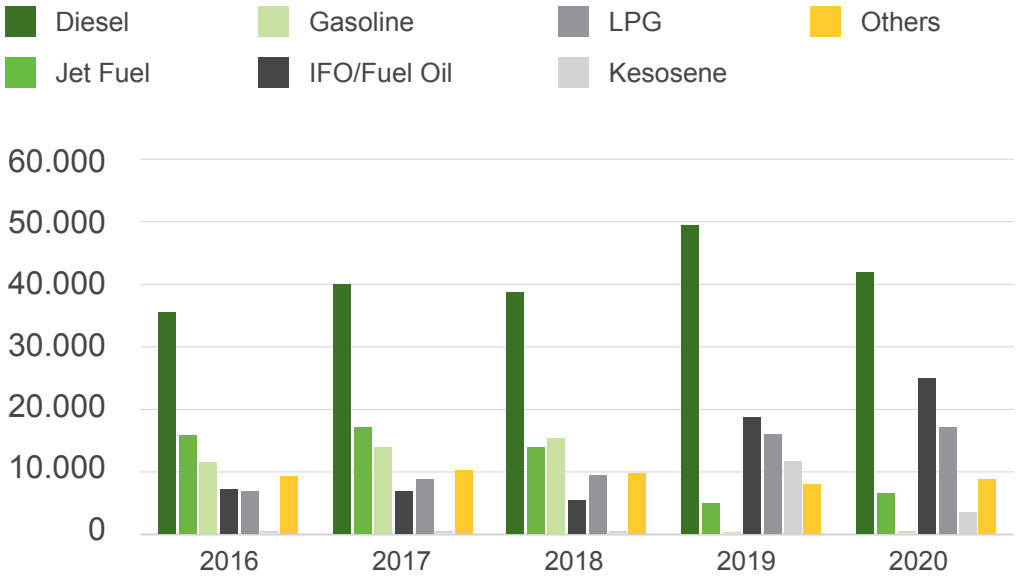
Import of crude oil by country of source, 2020



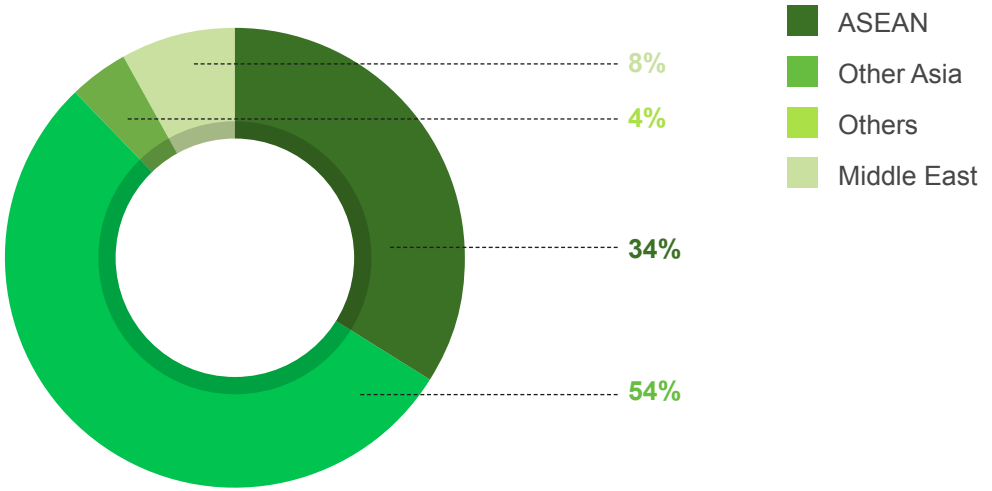
Philippines Energy - Imports and Exports of Petroleum Products - A

- Overall, the Philippines' imports of petroleum products has an increasing trend, except for the year 2020 due to the Covid-19 outbreak. In 2020, the country imported 103,108 MB of petroleum products, a decline of 5.4% compared o 2019.
- **Diesel** has been the product whose highest import volume, followed by **IFO/Fuel Oil, Jet Fuel and Kerosene.**
- Leading exporters of petroleum products to the country have been ASEAN countries (Brunei, Indonesia, Malaysia, Singapore, Thailand, Vietnam); Other Asian countries (China, Hong Kong, India, Japan, Russia, South Korea, Taiwan); and Middle East countries (Kuwait, Qatar, UAE)

Philippines' imports of petroleum products (MB)



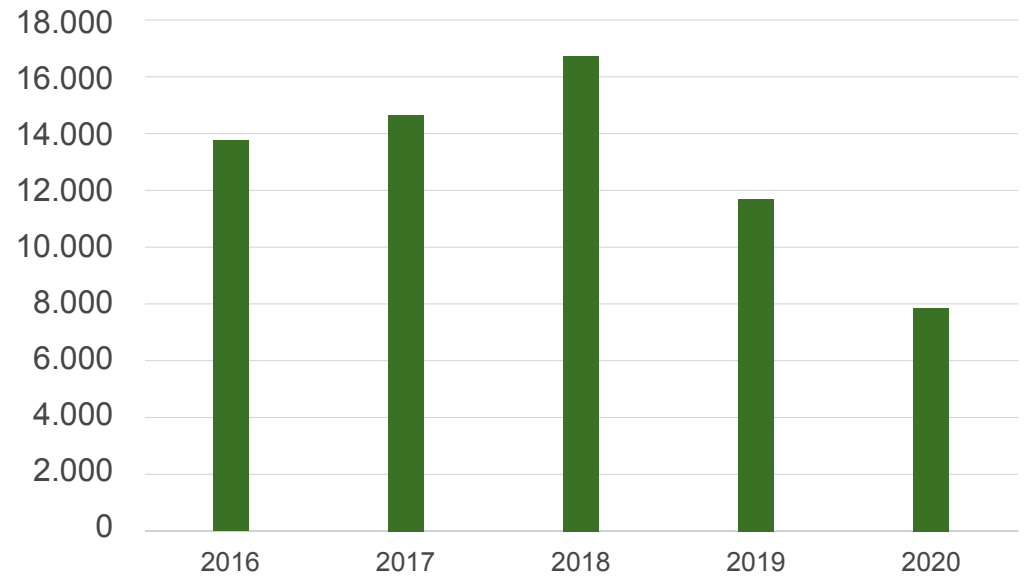
Imports of petroleum products, 2020



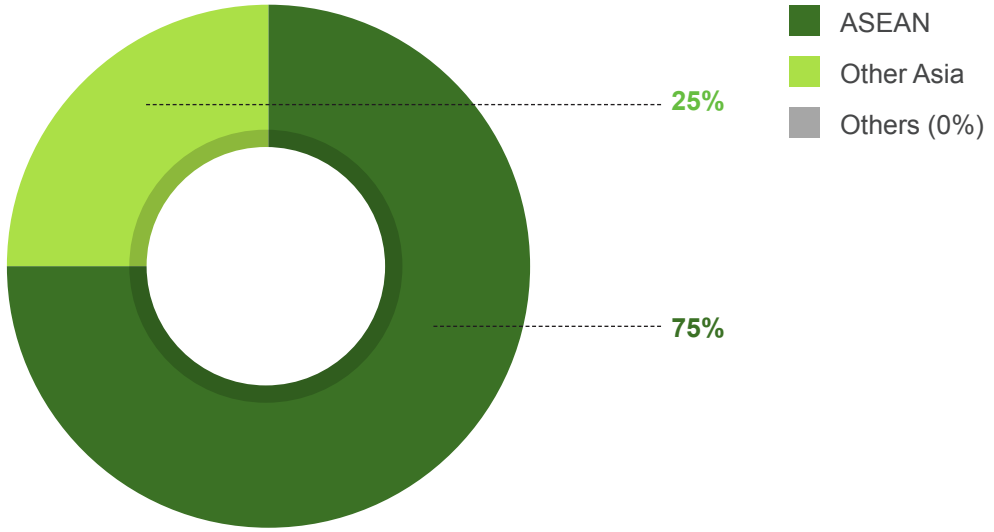
Philippines Energy - Imports and Exports of Petroleum Products - B

The country also exports a smaller amount of petroleum products mostly to ASEAN nations (primarily Malaysia and Singapore)

Philippines' exports of petroleum products (MB)



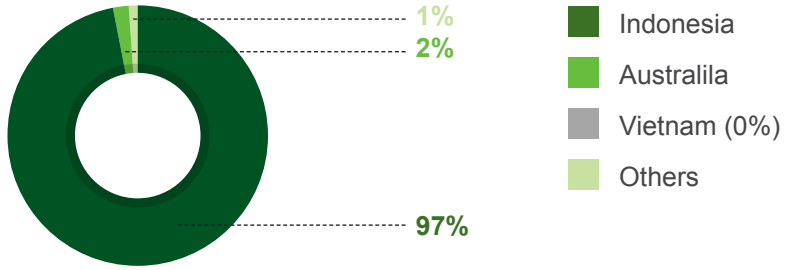
Exports of petroleum products, 2020



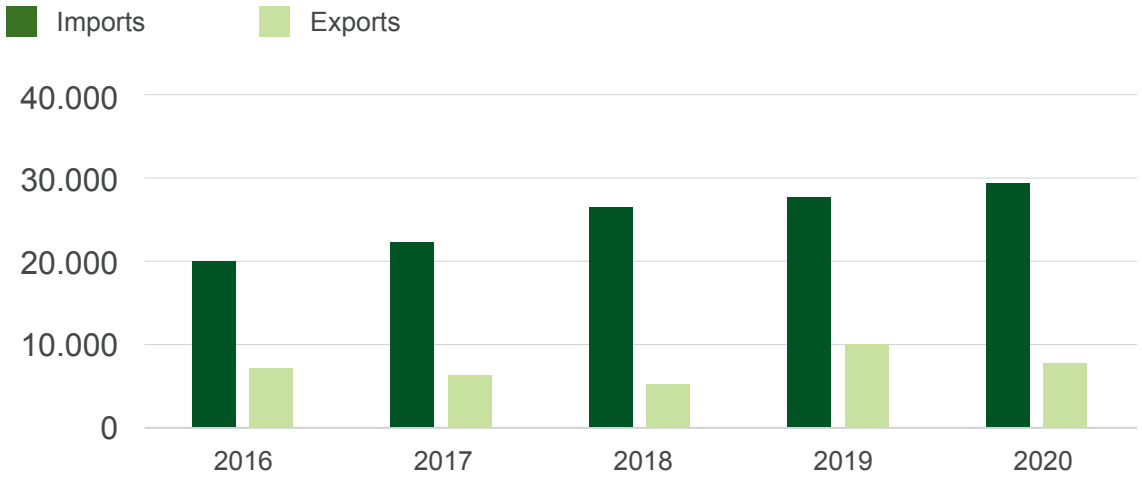
Philippines Energy - Imports and Exports of Coal

- The Philippines imports 75% of its coal supply – most of it from Indonesia and Australia – exposing the country's electricity system to political unrest, price volatility and the risk of unfavorable foreign exchange rates.
- For the country's coal imports, the country imported a total of 29.53 MMT in 2020. Indonesia was the largest source of coal imports at 96.9%, and these were mostly used in the power sector.
- Exports of coal from the Philippines have been mainly to serve the China market.

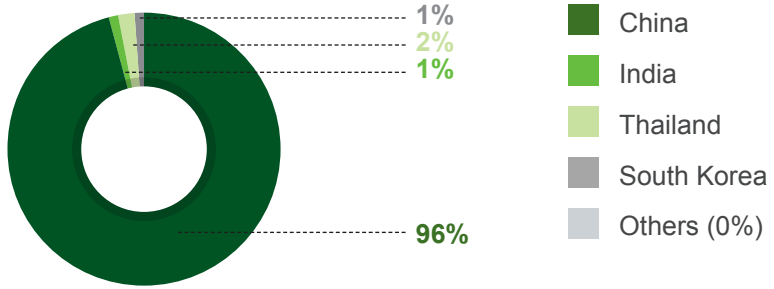
Coal Importation, by Country of Source



Coal imports and exports (MMT)



Coal Exportation, by Country of Destination



Major Trends

Philippines Energy - Major Trends

Coal Will Continue to Play a Key Role in Powering the Philippines.

Coal use in the Philippines is predicted to rise over the next 20 years. Despite increasing advances in renewable technology and alternative fuel sources, coal still provides a low-cost fuel source which is likely to play a large part in meeting the future growth in energy demand in the country.

Additionally, the DOE also put forth its efforts in expanding further the exploration and development of the country's domestic coal resource potential. Currently, the Philippines maintains 15 coal basins with total resource potential of 2.4 billion metric tons (BMT) and in-situ coal reserves of about 407.80 million metric tons (MMT).

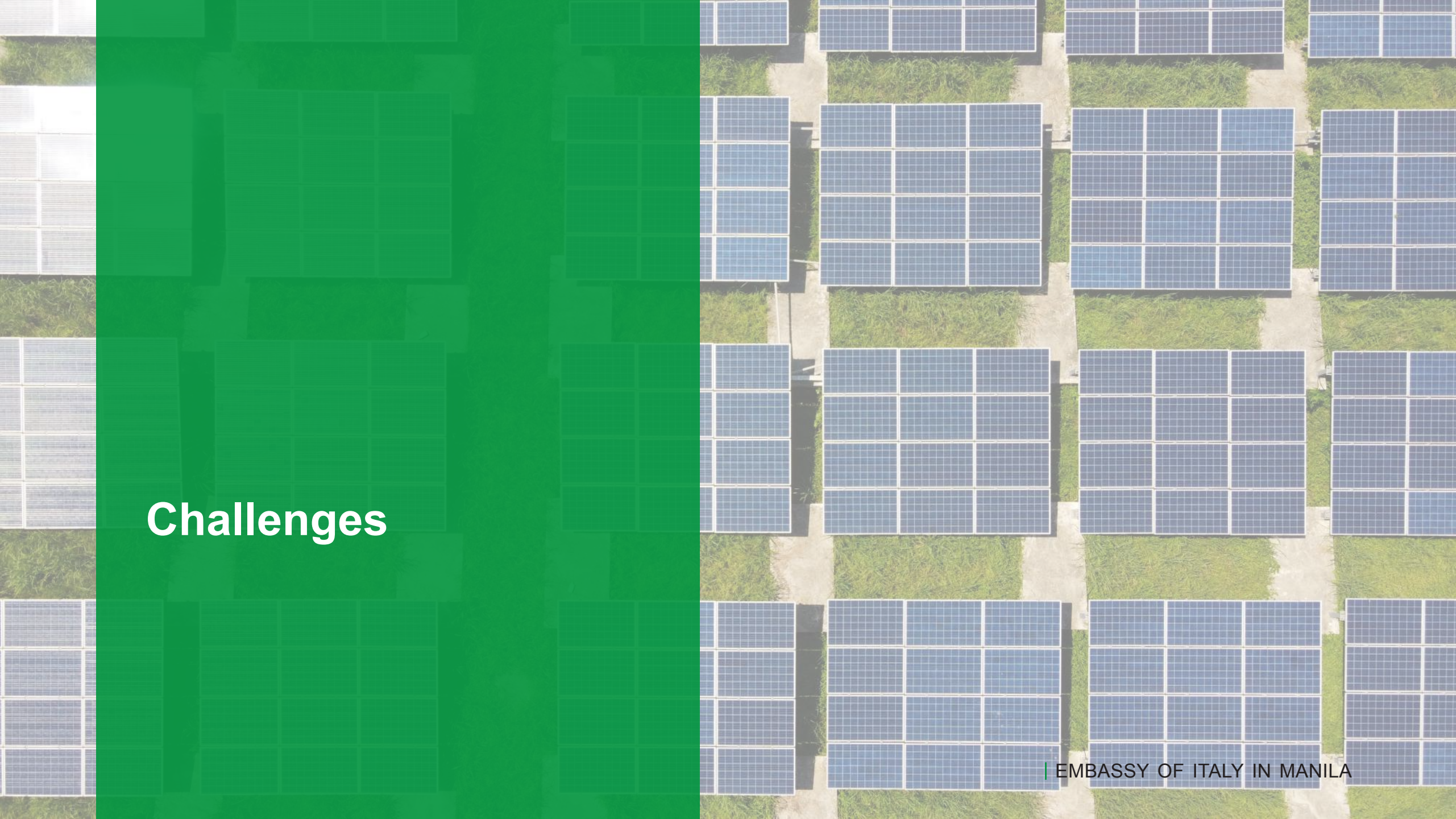
The Solar Energy Segment is Expected to Experience Significant Growth

Solar energy provides an immediate solution to the country's growing energy needs. With steadily falling costs of solar power equipment and the short amount of time needed to install and commission solar power projects, solar systems are increasingly becoming popular among consumers and industries across the Philippines. This popularity is further aided by the considerable drop in the prices of solar energy. The solar PV installation cost dropped from USD 4,731/KW in 2010 to USD 883/KW in 2020, whereas the installation cost of concentrated solar power cost dropped from USD 8,987/KW in 2010 to USD 4,725/KW in 2020. Due to the decline in prices and favorable government policies, the country is witnessing increasing installations of solar energy power plants during the forecast period.

In December 2021, Solar Philippines Nueva Ecija Corporation started the construction of its 500 MWp Nueva Ecija solar farm in Centrl Luzon, Philippines. The plant is likely to be constructed in phases, and the first 50 MWp solar farm is slated to go online by the end of 2022. The next stages of the project will follow successively. In December 2021, JGC Holding Corp was awarded a contract by Aboitiz Power Corp to build a 94-MW direct current solar park in the country. The project is slated for completion by the end of 2022. The solar farm will be located in Bugallon, Pangasinan.

Thus, taking the above points into consideration, it can be said that solar energy is likely to experience significant growth during the forecast period.

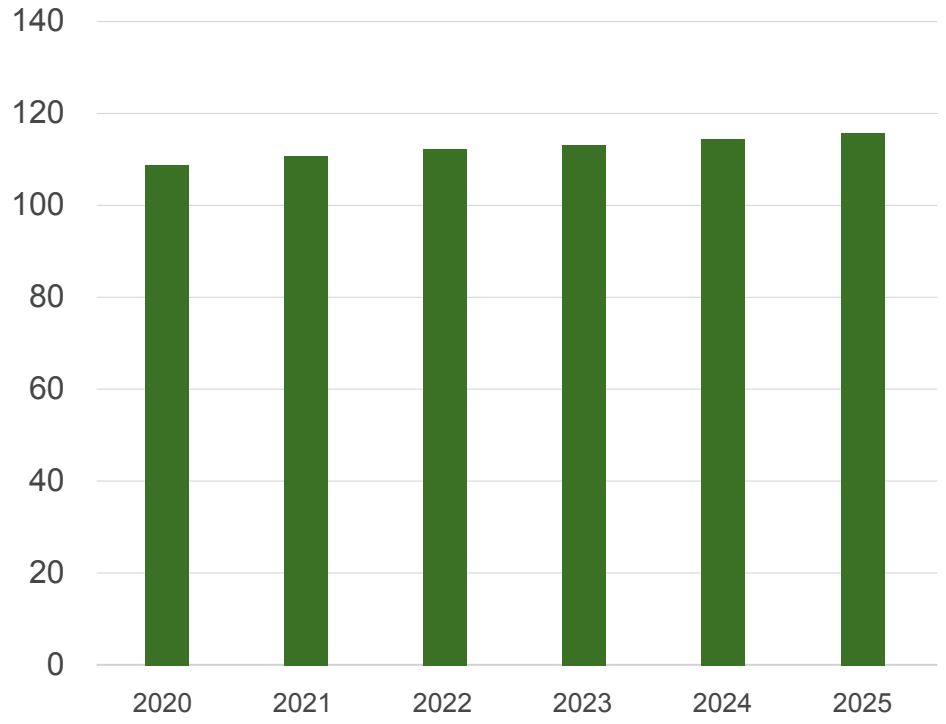
Challenges



Philippines Energy - Challenges

- The Philippines is facing a mounting **energy crisis** as the Malampaya gas fields deplete, supplying 30% of Luzon`s energy consumption, are expected to be depleted by 2024.
- The country is carrying an **ever-increasing population**. National population is expected to reach 115 million in 2025, according to forecasts by the Philippines Statistics Authority.
- Investors often find there is a gap between policy and the reality of implementation, particularly during the **early development and permitting phase**. A common complaint is that the permitting procedures for renewable energy projects are **complex and lengthy**. Approvals are required from a multitude of government agencies, each having their own timelines and milestones. Permits are required from all levels of Government (i.e. from the barangay, municipal, provincial, regional, and departmental authorities), which can give rise to variations in timing and application requirements and can appear to be a repetitive process.
- Challenges for investors also include **high upfront and technology costs, inaccessible financing** and lack of competitiveness in the market. Currently, only a few domestic banks support renewable energy projects in the region.

Philippines' population (in Millions)



Existing and Emerging Opportunities

Philippines Energy - Emerging and Existing Opportunities

The Philippine energy market offers opportunities in renewable energy, LNG, power generation, transmission, distribution and off-grid islands.

RENEWABLE ENERGY

The renewable energy market has given rise to new policy instruments such as renewable energy portfolio standards, net metering, and green energy option/auction programs. Low-enthalpy geothermal technologies, offshore wind development, and energy efficiency initiatives are all in various phases of feasibility and technical study.

The Philippines' National Renewable Energy Program 2020-2040 has set a target to achieve a 35% share of renewable energy in the power generation mix by 2030 and 50% by 2040. This presents significant opportunities in the Philippine renewable energy market.

LNG

The government issued a request for proposals for firms to compete to develop the nation's first integrated LNG import terminal, which is scheduled to open in 2022-2025. The procedure does not limit the number of companies that can compete, and many global and domestic enterprises are eagerly looking for this chance. Aside from the possibility to develop the terminal itself, the private sector companies in charge of administering the terminal will need to acquire gas. Once the downstream natural gas market is created and the first LNG port is completed, the Philippine government will encourage the usage of small-scale LNG (SSLNG) facilities.

Philippines Energy - Emerging and Existing Opportunities

POWER GENERATION

Firms are in different stages of power plant rehabilitation, upgrading, and/or regular maintenance work. This presents a range of opportunities for supplying various types of equipment and services. In particular, geothermal equipment solutions by Italian businesses are increasingly become popular in the Philippines market. For example, in 2021. Turboden S.p.A., based in Lombardy, Italy, and Mitsubishi Power, Ltd. have jointly received an order for 29-MW binary cycle power generation equipment to be installed at the geothermal power plant operated in Palayan, in the southeastern sector of Luzon Island, by Energy Development Corporation (EDC), Recently, EXERGY International, an Italian leading provider of new-generation geothermal binary power plants, has also signed a contract with EDC for the supply of an ORC binary system in EDC's first geothermal brine recovery power plant on Mindanao island, Philippines.

Large conglomerates are rebalancing their thermal/coal power assets with more renewable resources. As the market is fully privatized, these firms will make decisions based on price and need for diversification.

DISTRIBUTION AND TRANSMISSION

Solutions are needed for the main grid and new projects, such as $2 billion Visayas-Mindanao Interconnection Project. Smaller utilities will need to enhance their capabilities. The DOE mandates all distribution utilities undergo a competitive selection process (CSP) in securing power supply agreements (PSA).

UNSERVED AND UNDERSERVED MARKETS

The need for electricity and solutions outside the main islands and major population centers is critical, but often is not commercially viable. Off-grid and micro-grid solutions allow the use of additional solutions such as energy storage systems and rural electrification enhancements.

Major players

Philippines - Major Players - A

ENERGY

As of October 2020, the Aboitiz Power Corporation and San Miguel Power Corporation equally held the largest market share of the Philippines' power market concentration, holding 21% of the national installed capacity respectively. This was followed by First Gen at 15%.

RENEWABLE ENERGY

The Philippine renewable energy market is moderately consolidated. Some of the major players in the market include Philippine Geothermal Production Company Inc., Aboitiz Power Corporation, National Power Corporation, Vena Energy, and Solar Philippines Power Projects Holdings Inc.

Philippines - Major Players - B

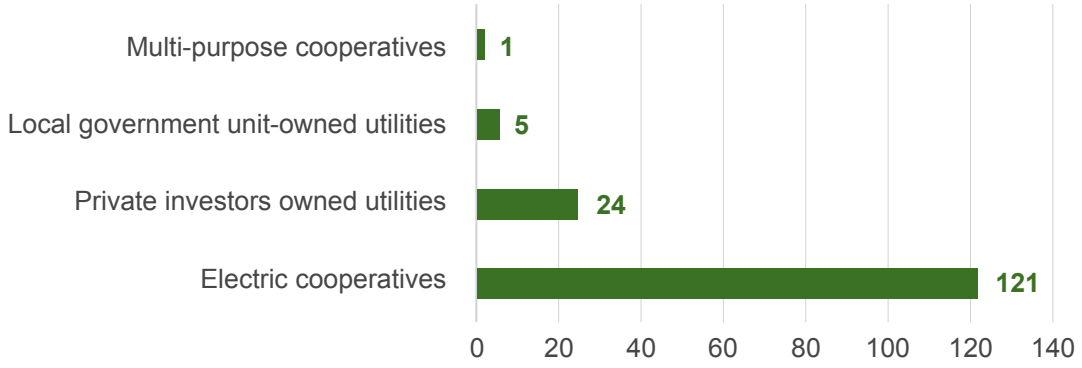
POWER

The Philippine electricity sector underwent privatization upon the implementation of the Electric Power Industry Reform Act of 2001 (“EPIRA”). As a result, the generation, transmission, and distribution of electricity were transferred to the private sector to liberalize and unbundle the power sector, as well as to promote competition.

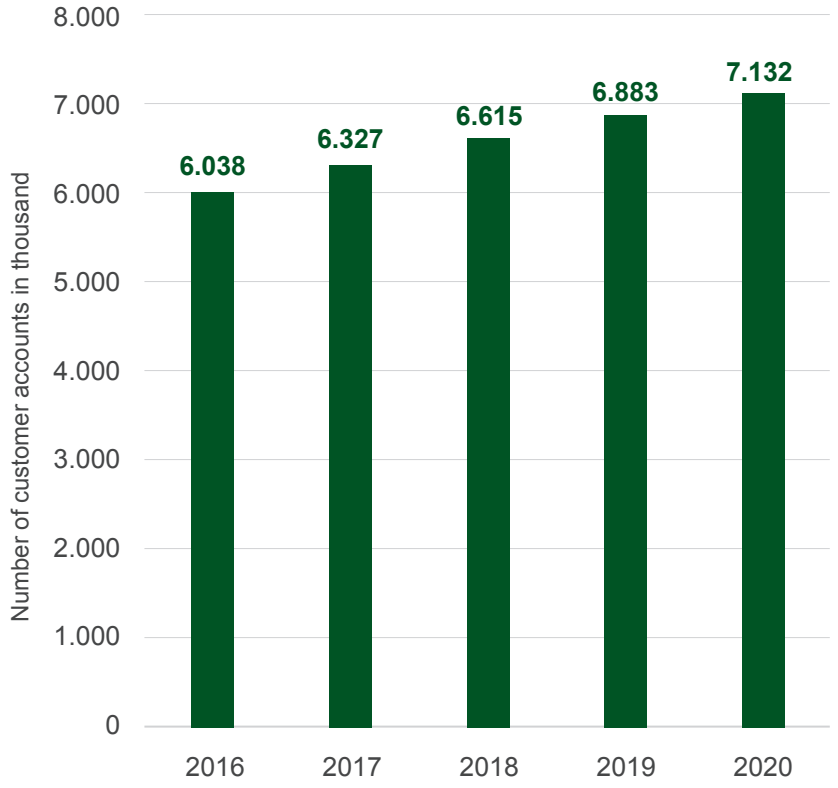
The largest distribution franchise in the country is owned by the Manila Electric Company (Meralco) holding 80% of the market.

The remaining 20% is made up of a few regional players, and 100+ electric cooperatives.

Number of distribution utilities in the Philippines in 2020, by type



Total number of Meralco customer accounts in the Philippines from 2016 to 2020



Philippines - Presence of Italian companies

Italian companies have been actively operating in the Philippines' energy sector, particularly in renewable segment, and its supporting industries.

Philippine Hybrid Energy Systems (PHESI) is a renewable energy development company, engages in developing wind, hydro, and solar energy projects in the Philippines and other countries in Asia. PHESI was founded as a joint project with BreezElectric LLC, of San Diego, by Nicanor S. Villaseñor III. Later, Philippine/Italian developer Construction Management and Consultancy Asia, Inc. merged with PHESI, with its owner, Armando De Rossi becoming the new CEO and President. One of its notable projects has been a 48.0MW wind power project located in the Province of Puerto Galera, Oriental Mindoro, Philippines.

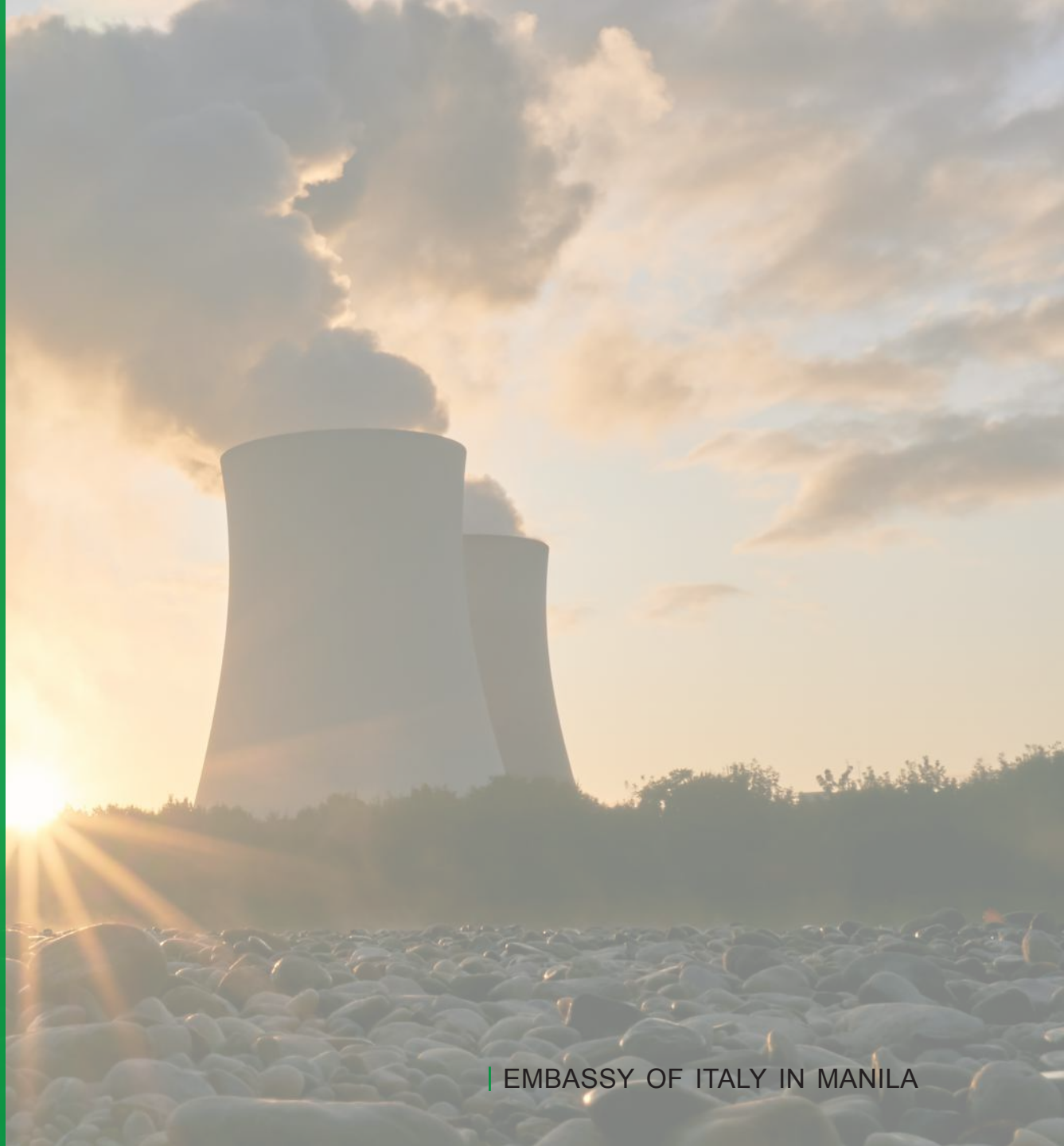
Edensa is a majority-owned subsidiary of the Italian utility company Enel. The company currently operates a branch office in Makati, specializing in carbon market.

Maccaferri, founded in Italy in the 19th century, is now a leader in the manufacturing and supply of gabions and associated wire mesh products to the global construction industry. The company currently supplies engineering solutions for a wide range of sectors, including energy. Maccaferri is now operating a factory in Laguna and an office in Manila to develop its business in the Philippines.

C. Lotti & Associati Società di Ingegneria S.p.A. is an Italian company providing engineering services for environmental and energy projects. The company operates a branch office in the Philippines to serve the local market.

RENARDET SA & Partners falls under the umbrella of the BONIFICA Group with their head office in Italy. The company provides engineering consultancy for various types of projects, including power plants, hydropower, electrification system. RENARDET operates a branch office in the Philippines to serve the local market.

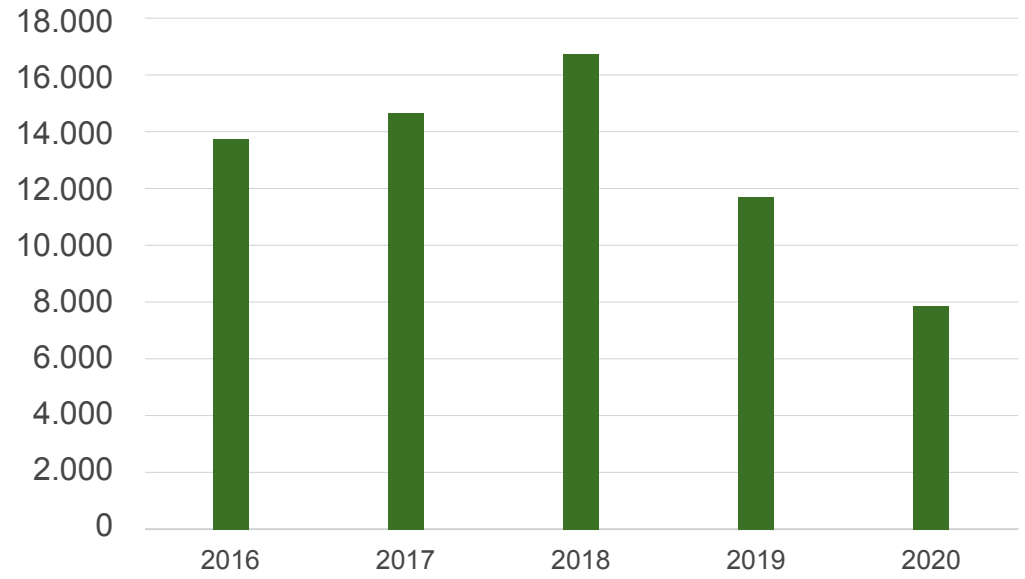
Major products/services



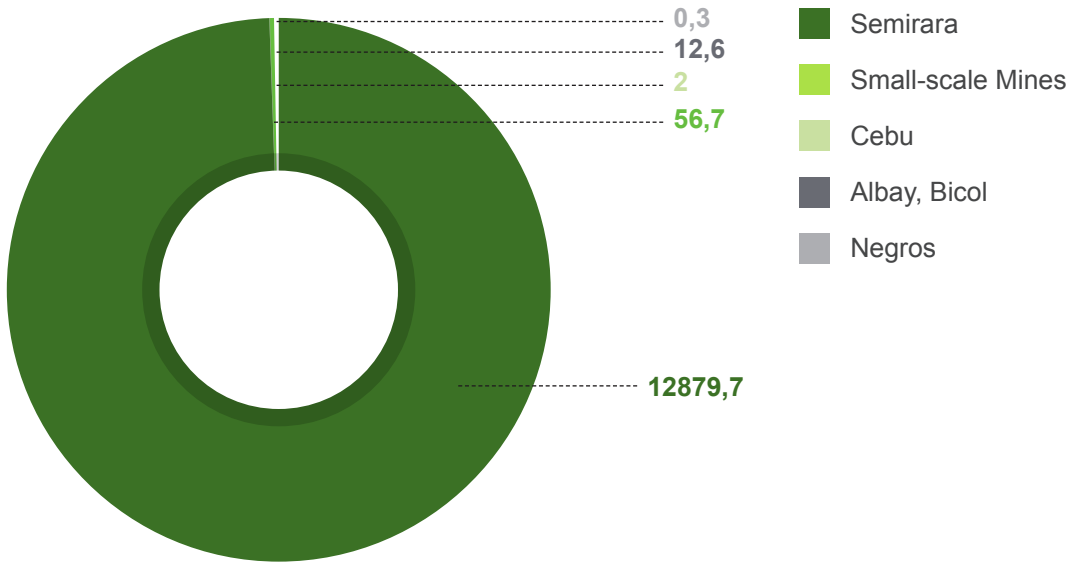
Philippines Energy - Coal - A

In 2020, the total volume of coal produced in the Philippines reached approximately 12.9 MMT, reflecting a slight decrease of 5.8% from the previous year. The Semirara Mining and Power Corporation is the largest coal producer in the country.

Coal production (MMT)



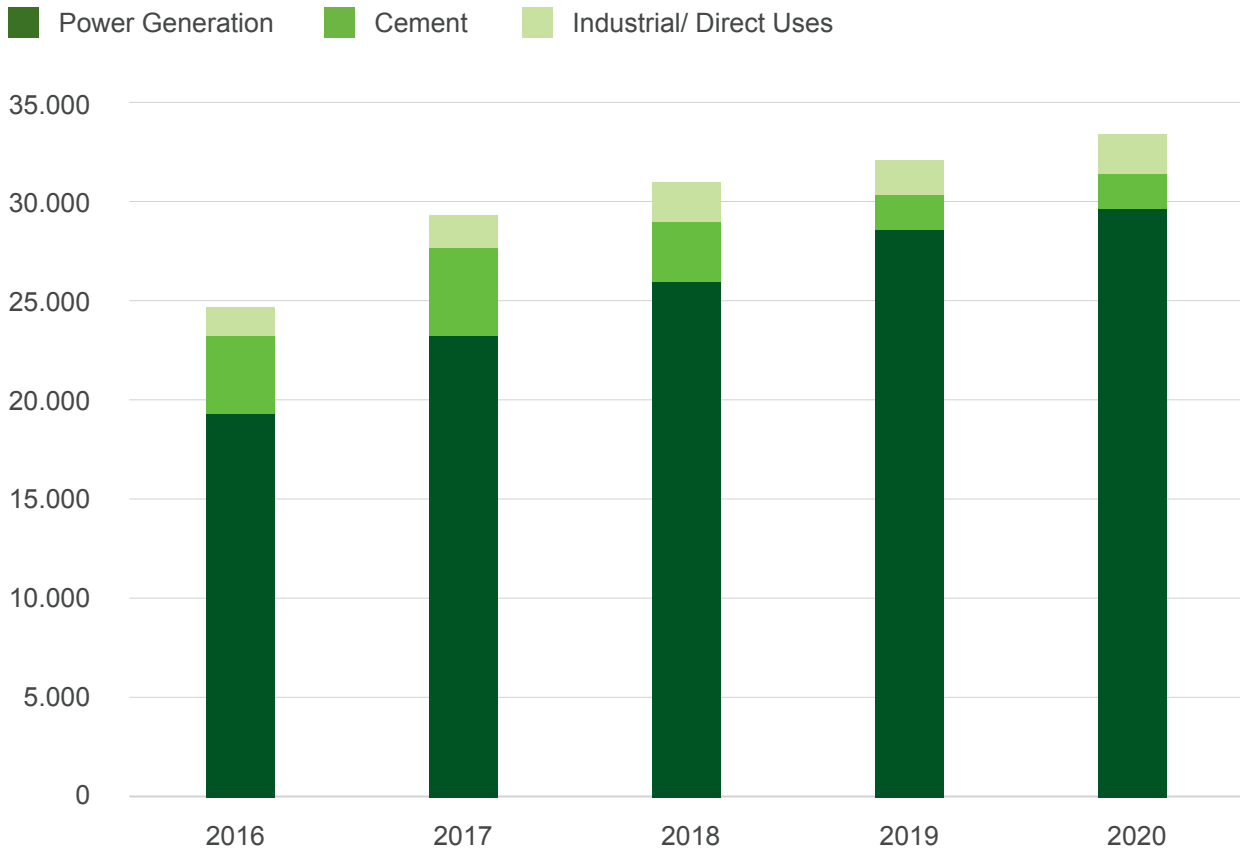
Coal production in 2020 by source (MMT)



Philippines Energy - Coal - B

- Overall, domestic production of coal only meets 40% of total national consumption of coal.
- Coal is mainly used for power generation when over 90% of the output is consumed by power companies.
- Cement factories are using less coal. The input coal for these business declined by more than a half during 2016 – 2020.
- Industrial and direct use has been the least common for coal consumption when it only accounted for around 5% of total coal consumption in 2020.

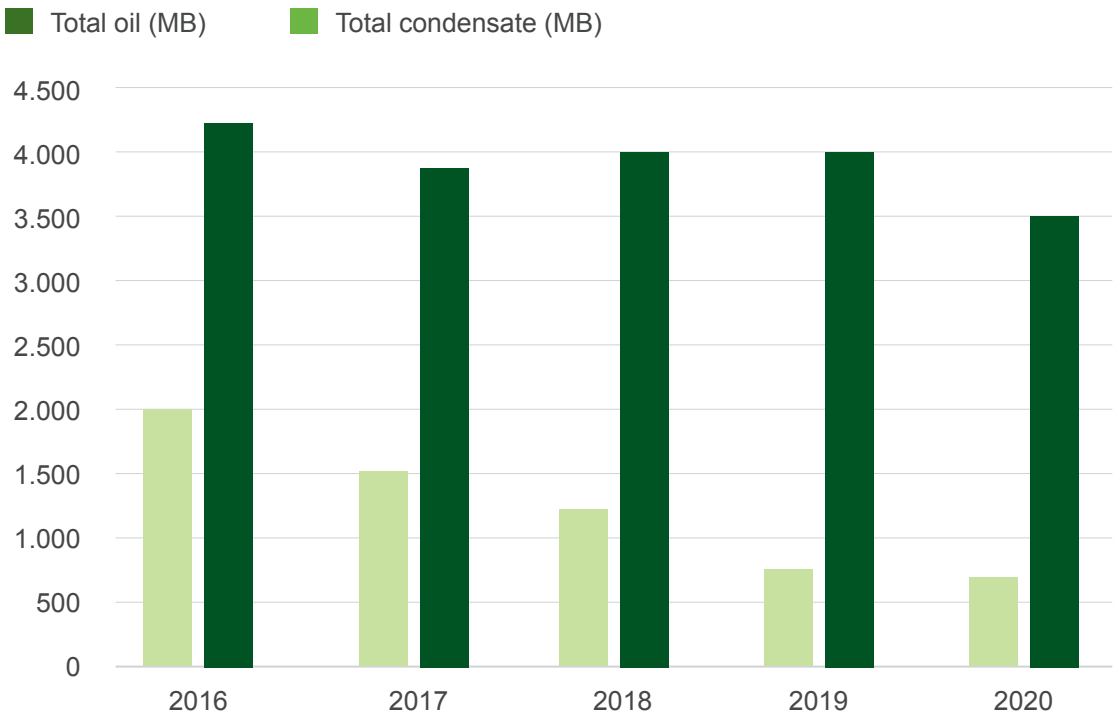
Coal consumption by sector (MMT)



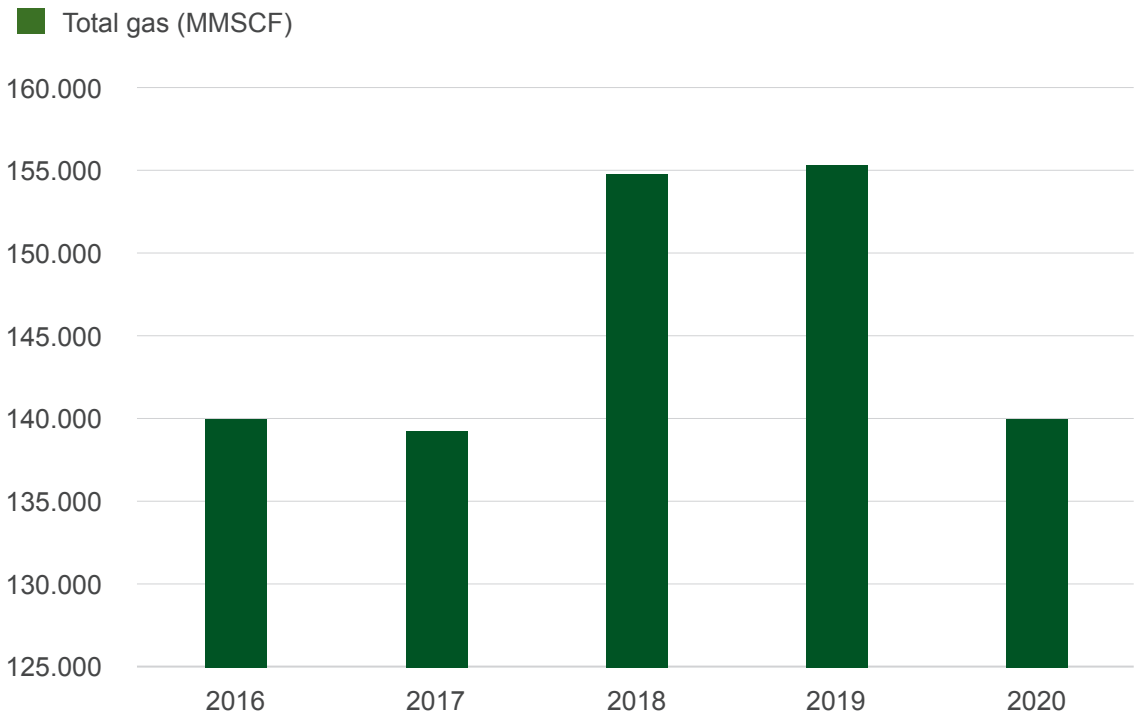
Philippines Energy - Oil and Gas

The country is only self-sufficient for a minor share of the oil and gas segment. Additionally, the total oil output has declined over the last years when oil output was recorded at 700 MB in 2020, over one-third of the output in 2016.

Oil production (MB)



Gas production (MMSCF)

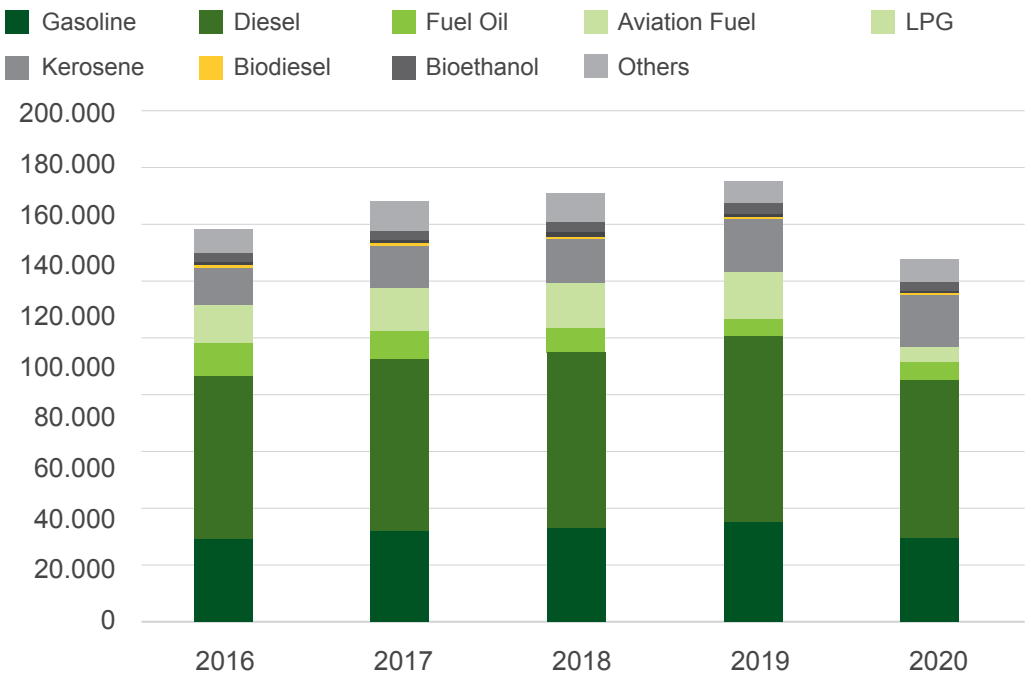


Philippines Energy - Petroleum Products

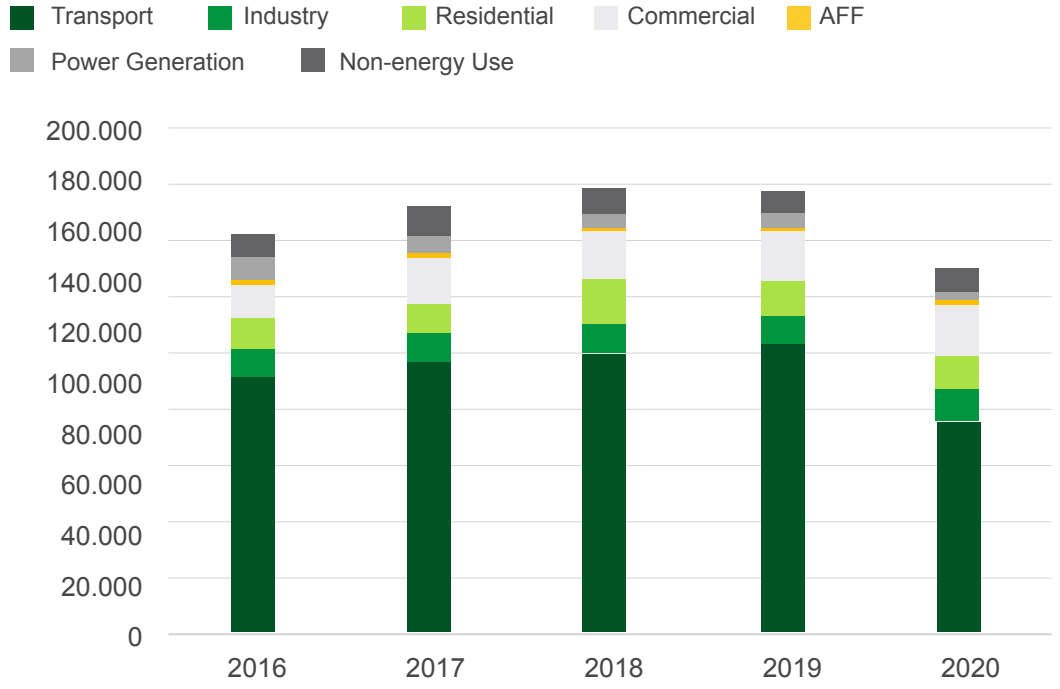
Overall, the total consumption of petroleum products by the Philippines posted an increasing trend from 2016-2019. Total consumption during this period had experienced a CAGR of 3.86%. Consumption of petroleum products declined significantly during 2020 due to the global pandemic.

- Diesel and gasoline have been the major petroleum products consumed in the country. Consumption volume of these goods accounted for 66% of total petroleum consumption in the Philippines.
- Transportation has been the major sector consuming the highest volume of petroleum products.

Oil production (MB)



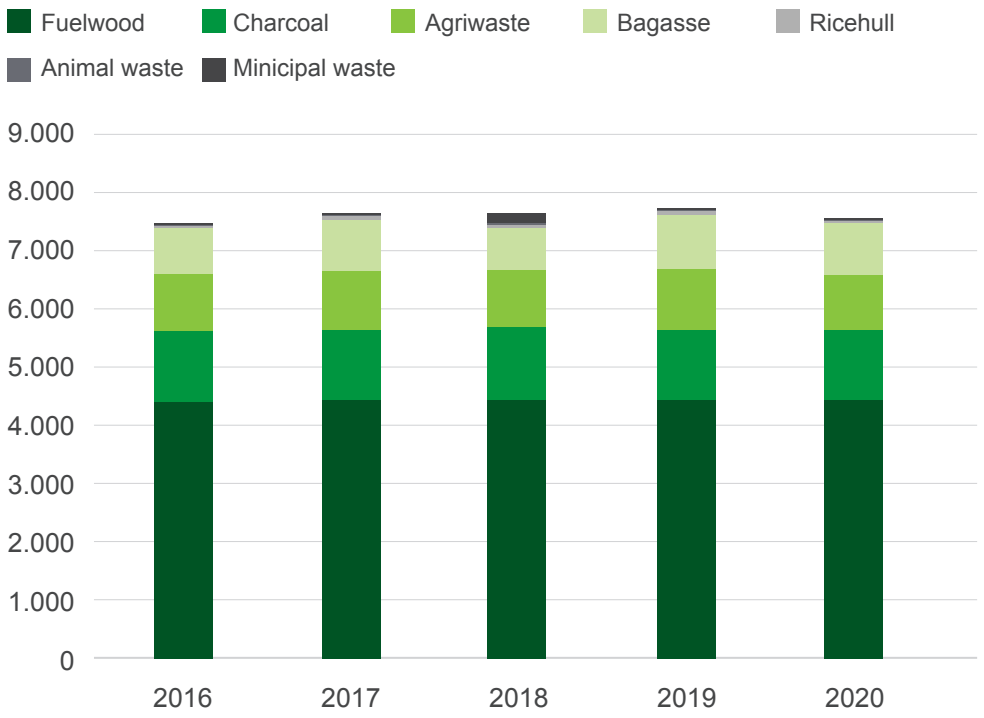
Gas production (MMSCF)



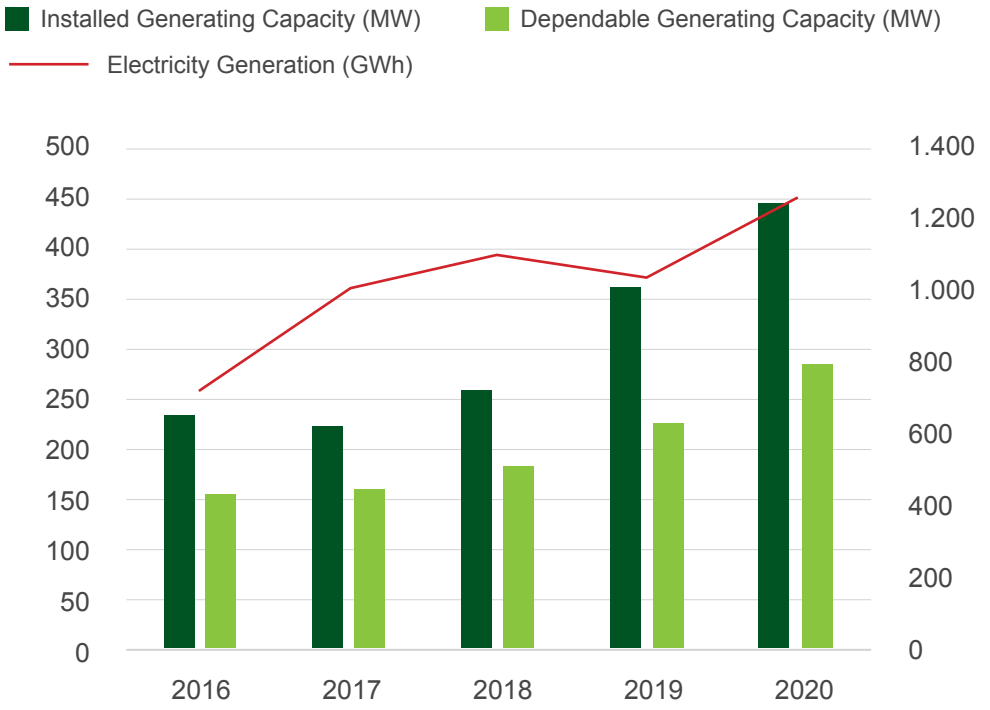
Philippines Energy - Biomass

A major share of renewable energy in the Philippines attributes to biomass, primarily generated from fuelwood, charcoal and agriwaste. Almost half of the landmass of the Philippine archipelago is devoted to agriculture, and this industry produces a huge volume of agricultural waste. The largest volume of agricultural waste comes from rice straw, husks, and tropical fruit, which accounts for approximately 16 million tons of agricultural waste per annum. Two million tons of rice husk per annum could be equivalent to five million barrels of oil, in terms of energy generation.

Biomass production by fuel type (kTOE)



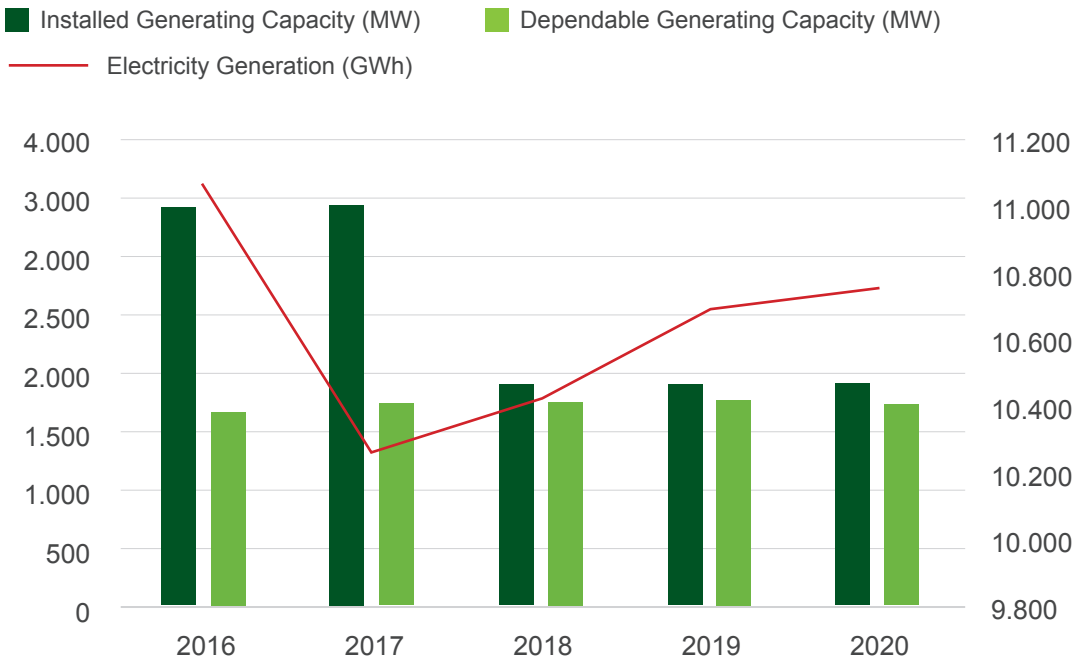
Power generation by biomass



Philippines Energy -Geothermal

The Philippines is already the world's second largest producer of geothermal energy, with an untapped resource potential of 2,600 MW. The country is located in the Pacific Ring of Fire and thus has a high geothermal potential. Geothermal energy is now the largest renewable source of power generation with 19,28 MW installed capacity, making up 8.9% of total generating capacity. In the Philippine Energy Plan (2012-2030), the Department of Energy identified 26 sites to increase existing installed capacity by 62% throughout the 18-year planning period

Geothermal

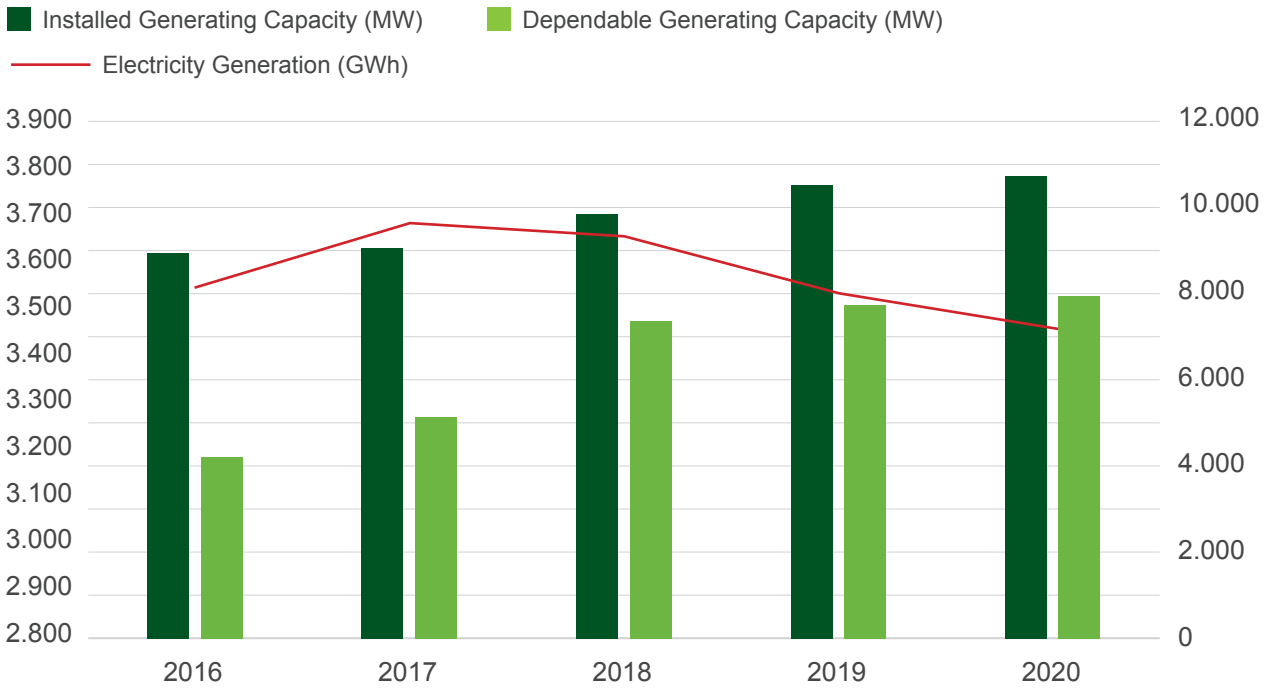


Geothermal projects identified in the Philippine Energy Plan (2012-2030)			
Region	**Site**	**Location**	**Generation capacity (MW)**
Cordillera Administrative Region	Kalinga	Kalinga	120
	Daklan	Benguet	60
	Buguis-Tinoc	Ifugao	60
	Acupan-Itogon	Benguet	20
	Mainit-Sadanga	Mt. Province	80
II	Cagua-Baua	Cagayan	45
III	Natib	Bataan	40
IV-A	Mabini	Bantangas	20
	San Juan	Bantangas	20
IV-B	Montelago	Oriental Mindoto	40
V	Del Gallego (Mt. Labo)	Camarines Sur	65
	Camarines Sur Geothermal Project	Camarines Sur	70
	Southern Bicol	Sorsogon	40
VI	Mandalagan	Negros Occidental	20
VII	Lagunao	Negros Oriental	60
VIII	Biliran	Biliran	50
	Bato-Lunas	Leyte	65
IX	Lakewood	Zamboanga del Sur	40
X	Ampiro	Misamis Occidental	30
	Balingasag	Misamis Oriental	20
	Sapad-Salvador	Lanao del Norte	30
XI	Amacan	Compostela Valley	40
	Mt. Zion	North Cotabato	20
	Mt. Matutum	General Santos	20
	Mt. Parker	South Cotabato	60
XIII	Mainit	Surigao del Norte	30
TOLTAL			**1,165**

Philippines Energy - Hydropower

Hydropower accounts for around 4% of primary energy supply in the Philippines and has an untapped potential of 13,097 MW. Approximately 85% of this potential is suitable for large and small hydropower, and the rest consist of mini and micro-hydropower. The government has identified 18 potential sites for development, which accounted for 86% of the total potential.

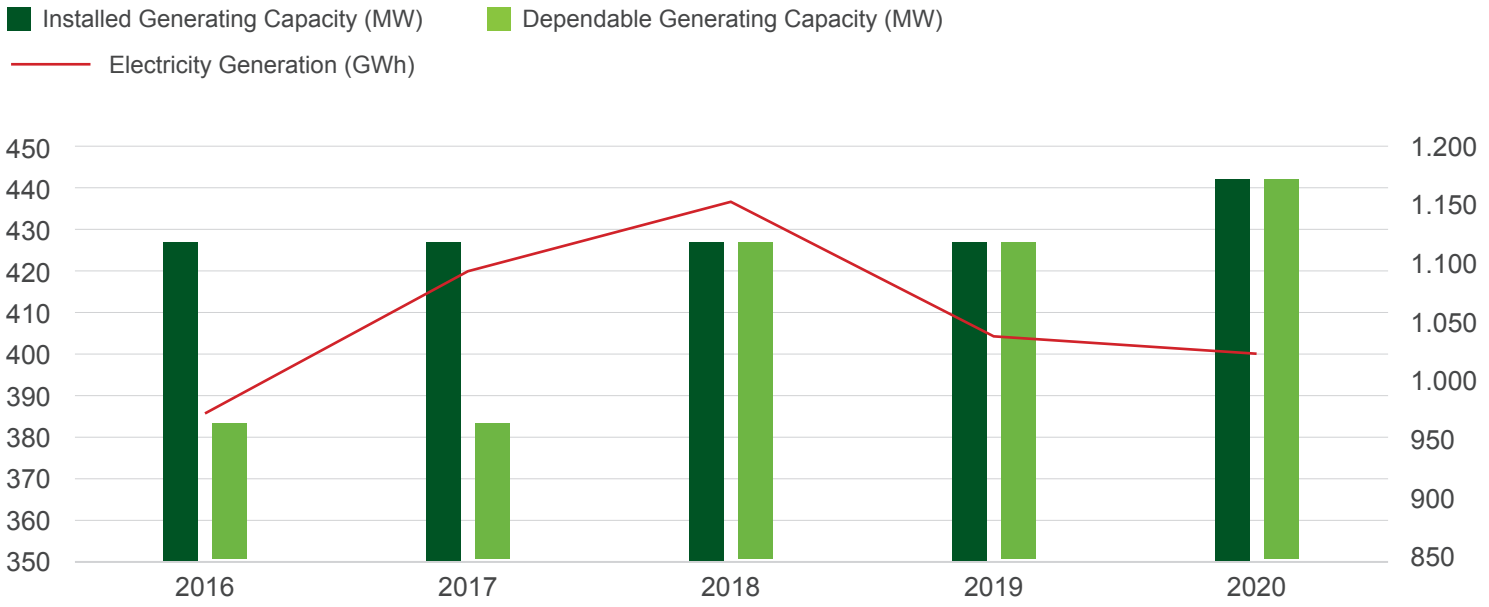
Hydropower

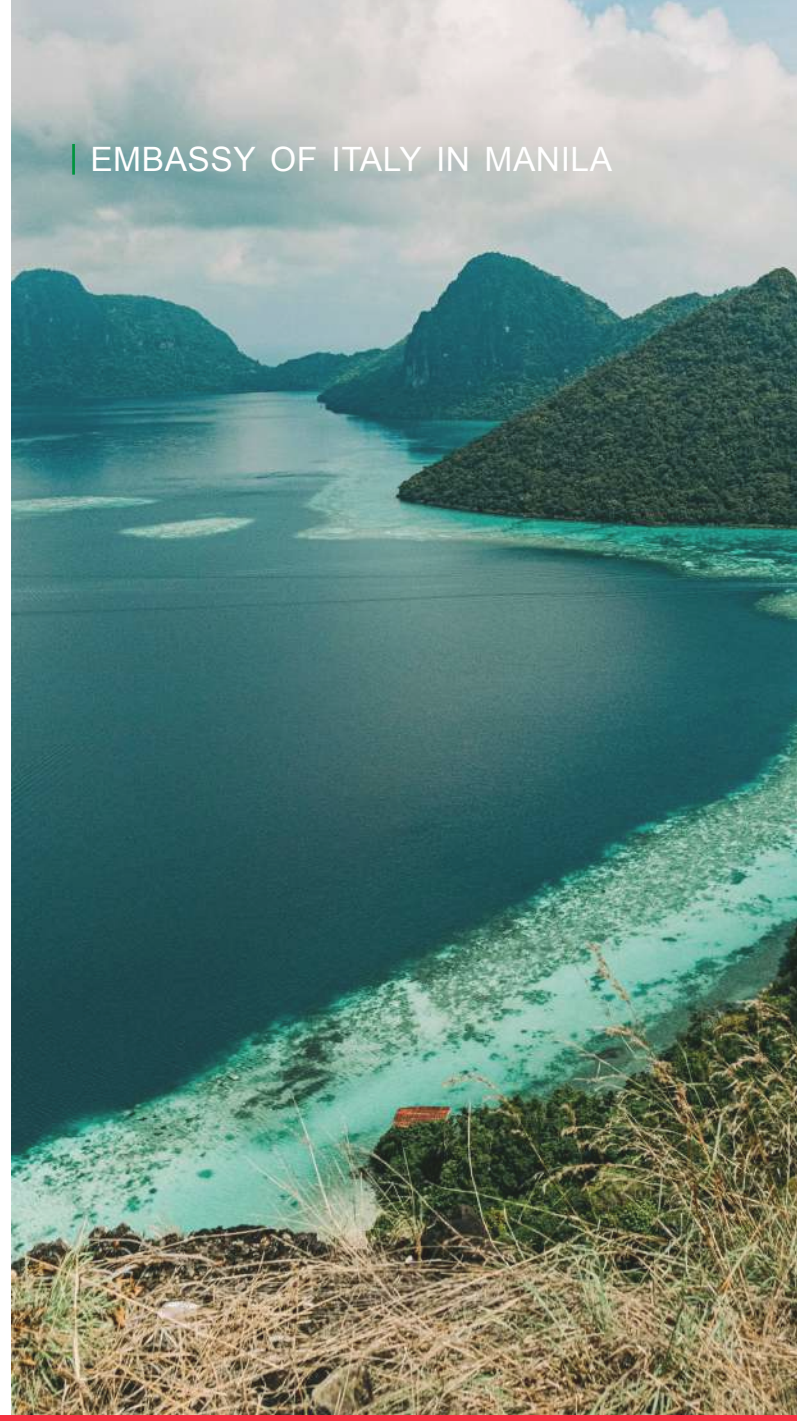


Philippines Energy - Wind

The Feed-in-Tariff (FIT) policy has been attributed as driving installed capacity from 33 MW in 2012 to 442 MW by 2020. Offshore wind has also successfully taken off following the FIT policy. In 2019, there were more than 50 wind projects registered with the Department of Energy. In 2020, the Philippines is taking the first steps into the offshore wind power sector with plans to develop 1.2 GW.
It is estimated that the Philippines has an untapped resource potential of 70,000 MW for wind energy. The wind resources in the Philippines are greatest in the northern and central areas such as the islands of Batanes and Babuyan, and the northern and central Luzon areas

Wind

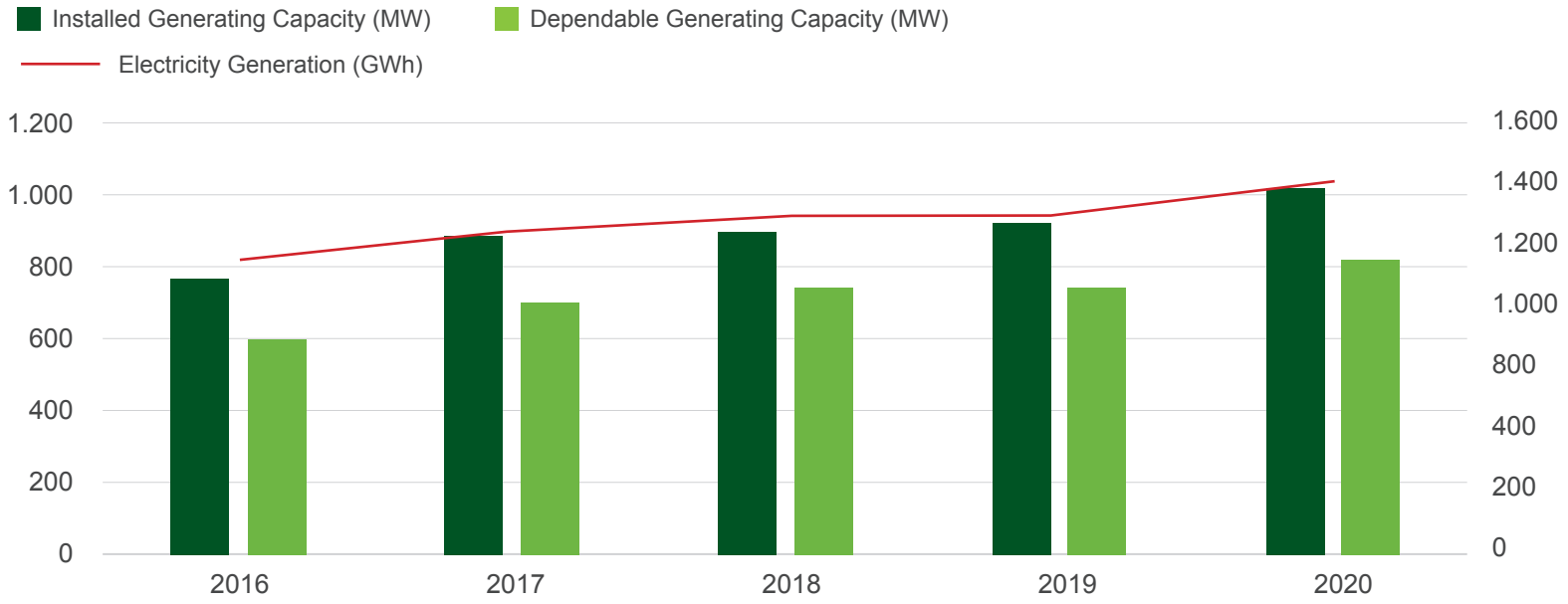




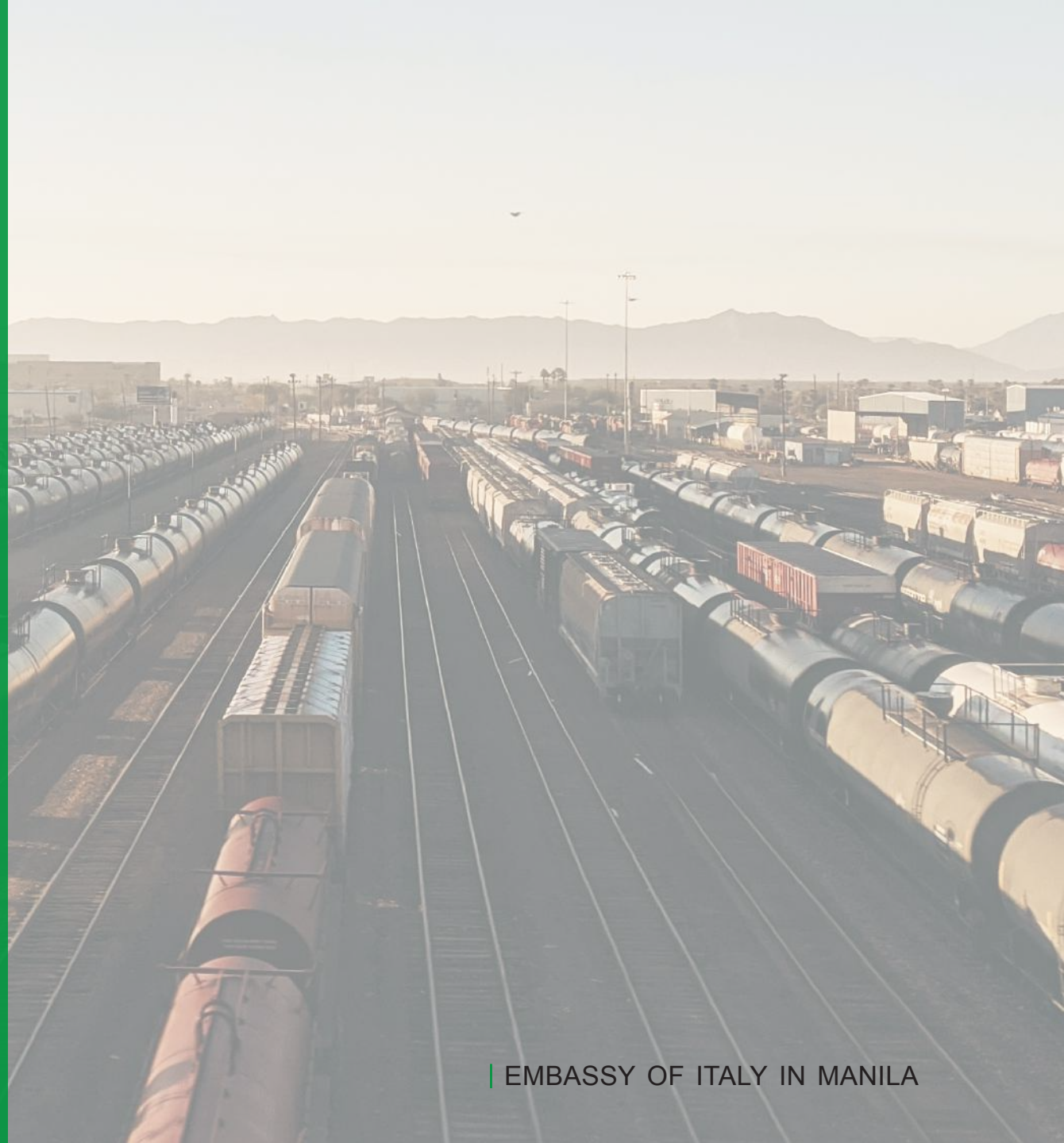
Philippines Energy - Solar

Installed capacity and electricity generation form solar projects have increased stably in the past 5 years and is expected to continue rising in the upcoming period. Both the northern and southern parts of the Philippines are suitable regions for solar power generation, as they are equally exposed to solar irradiance. Of the different the forms of solar energy generation, solar rooftop is the most popular in the Philippines. There is also a great opportunity to further develop floating solar projects located on hydro dams owned by the National Irrigation Administration. Such a project combines solar and hydropower to manage low water-power. The Department of Energy estimated that by 2030 at least one-third of the total installed solar will be rooftop solar.

Solar



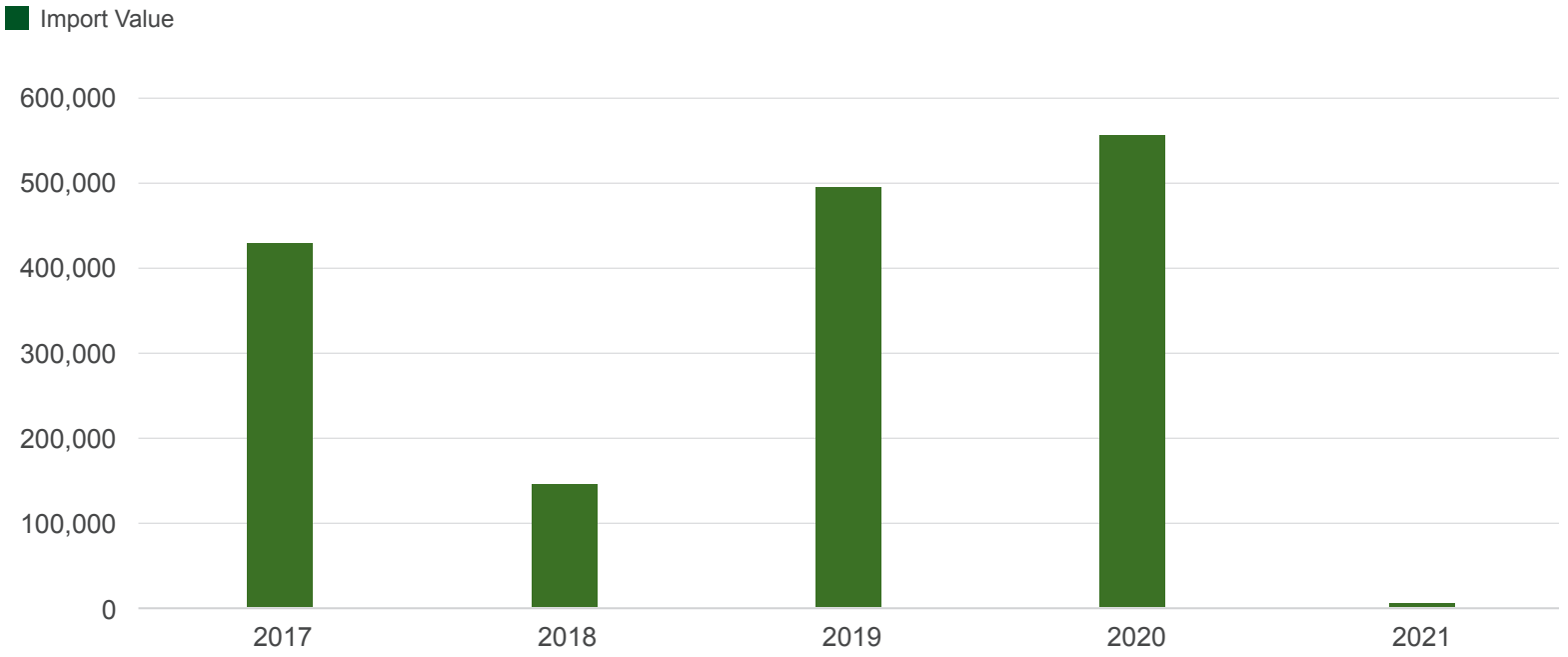
Imports (from Italy to the Philippines) and Custom Duties



Philippines - Imports (from Italy to the Philippines)

Products imported from Italy are of HS Code 2714 (Bitumen and asphalt, natural; bituminous or oil shale and tar sands; asphaltites and asphaltic rocks) and 2712 (Petroleum jelly; paraffin wax, microcrystalline petroleum wax, slack wax, ozokerite, lignite wax, peat wax, other mineral waxes and similar products obtained by synthesis or by other processes, whether or not colored)

Italian exports of HS Code 27 to the Philippines (Euro)



Philippines - Imports (from Italy to the Philippines) and Custom Duties

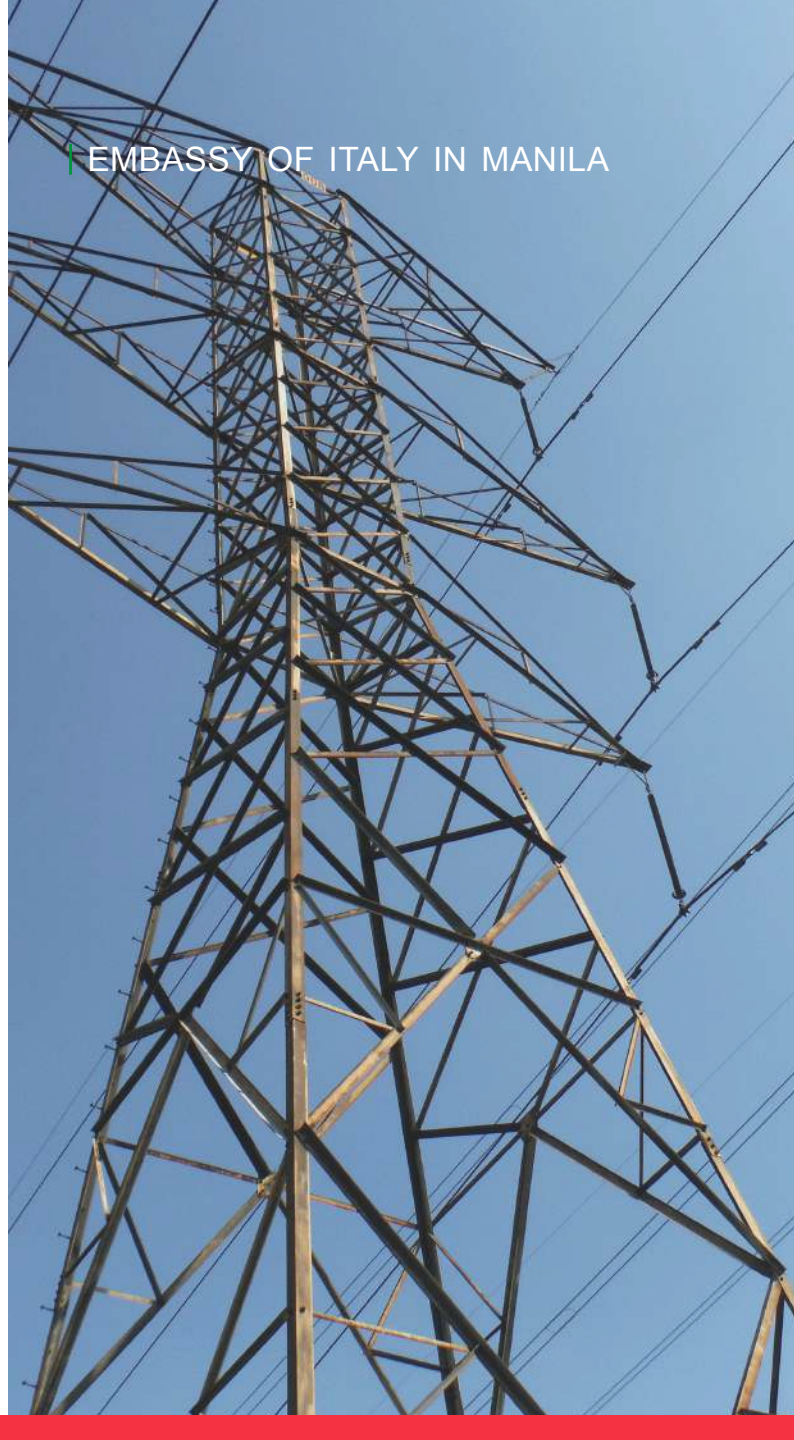
As per the Philippine Standard Commodity Classification (PSCC), DSA has focused on the below product group as per classification for trade data;

“HS CHAPTER 27: MINERAL FUELS, MINERAL OILS AND PRODUCTS OF THEIR DISTILLATION; BITUMINOUS SUBSTANCES; MINERAL WAXES”

2701 - Coal; briquettes, ovoids and similar solid fuels manufactured from coal:
2702 - Lignite, whether or not agglomerated, excluding jet
2703 - Peat (including peat litter), whether or not agglomerated
2704 - Coke and semicoke of coal, of lignite or of peat, whether or not agglomerated; retort carbon
2705 - Coal gas, water gas, producer gas and similar gases, other than petroleum gases and other gaseous hydrocarbons
2706 - Tar distilled from coal, from lignite or from peat, and other mineral tars, whether or not dehydrated or partially distilled, including reconstituted tars
2707 - Oils and other products of the distillation of high temperature coal tar; similar products in which the weight of the aromatic constituents exceeds that of the nonaromatic constituents
2708 - Pitch and pitch coke, obtained from coal tar or from other mineral tars
2709 - Petroleum oils and oils obtained from bituminous minerals, crude
2710 - Petroleum oils and oils obtained from bituminous minerals, other than crude; preparations not elsewhere specified or included, containing by weight 70 percent or more of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations; waste oils
2711 - Petroleum gases and other gaseous hydrocarbons
2712 - Petroleum jelly; paraffin wax, microcrystalline petroleum wax, slack wax, ozokerite, lignite wax, peat wax, other mineral waxes and similar products obtained by synthesis or by other processes, whether or not colored
2713 - Petroleum coke, petroleum bitumen and other residues of petroleum oils or of oils obtained from bituminous minerals
2714 - Bitumen and asphalt, natural; bituminous or oil shale and tar sands; asphaltites and asphaltic rocks
2715 - Bituminous mixtures based on natural asphalt, on natural bitumen, on petroleum bitumen, on mineral tar or on mineral tar pitch (for example, bituminous mastics, cut-backs)
2716 - Electrical energy

Philippines - Italian Exports to the Philippines by Product Classification

HS Code	Average Philippines Import Duties (average rates of all products under the 6-digit categories)
2701	4%
2702	3%
2703	3%
2704	1%
2705	3%
2706	3%
2707	2.7%
2708	3%
2709	0%
2710	1%
2711	0%
2712	0%
2713	0%
2714	1.5%
2715	3%
2716	0%



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EMBASSY OF ITALY IN MANILA