First Gen

We Care. We Dare.

DOE VIRTUAL ENERGY INVESTMENT FORUM

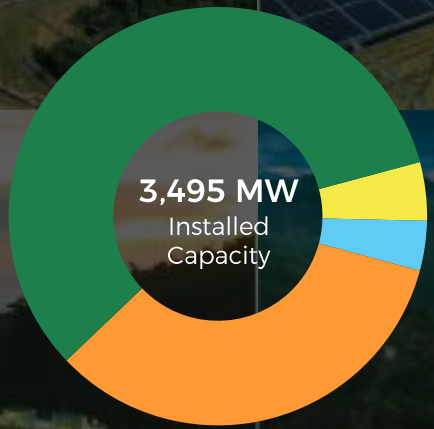
28 October 2022

First Gen
We Care. We Dare.

Giles B. Puno

President & COO

Leading the country's transition to a decarbonized energy system with its distinct portfolio of renewable and low carbon energy assets



58%

Natural Gas

Baseload / Mid-merit / Peak

1,000 MW Santa Rita
500 MW San Lorenzo
420 MW San Gabriel
97 MW Avion

100% economic ownership

34%

Geothermal

Baseload

1,182 MW Energy Development Corp. (EDC)

46% economic ownership

4%

Wind/Solar

150 MW EDC Burgos Wind
6.82 MW EDC Burgos Solar
5.17 MW EDC Rooftop Solar

46% economic ownership

4%

Hydro

Baseload / Peak

132.8 MW Pantabangan-Masiway
67% economic ownership

1.6 MW Agusan
100% economic ownership

Largest player in natural gas power | Largest player in geothermal power | 3rd largest player in installed capacity

First Gen

MISSION

Forging collaborative pathways for a decarbonized and regenerative future

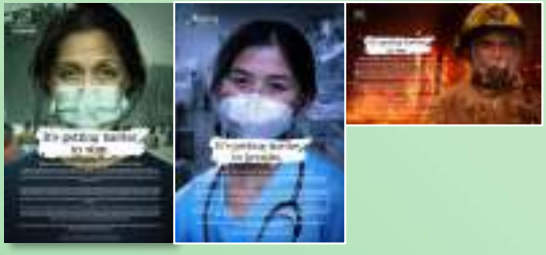
Chosen Path

Lead the transition to a decarbonized Philippine energy system

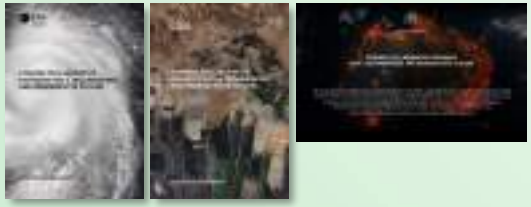
First Gen and FPH climate change advocacy with annual reports

2021

2020: It's getting harder to stay, breathe and see.



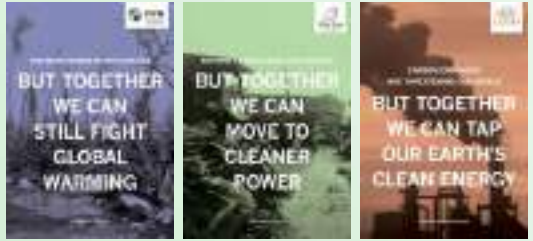
2019: Forging Collaborative Ways for a Decarbonized and Regenerative Future



2018: Due to Climate Change, Only the Seas Will Have Parking

2017: We Are Running Out of Time

2016: Nothing's Cheap About Dirty Energy but Together We Can Move to Cleaner Power



First Gen is investing in solutions that address energy security and energy transition of the country

Project Aya

100 MW Aya Pumped-Storage facility

EDC Geothermal Brownfield Expansion

29 MW Palayan Bayan
21 MW Tanawon
3.6 MW Mindanao 3
28 MW Mahanagdong
5.6 MW NNGP

FGEN LNG Terminal

LNG Terminal in First Gen Clean Energy Complex in Batangas

Philippines commits to decarbonization

TOP STORIES

Philippines commits to 75% reduction in greenhouse gas emissions by 2030

April 16, 2021 | 7:24 pm

Source: https://www.bworldonline.com/top-stories/2021/04/16/361408/philippines-commits-to-75-reduction-in-greenhouse-gas-emissions-by-2030/

DOE continues to uphold coal moratorium

Coal moratorium to stay under Marcos admin – DOE

Published August 9, 2022 3:49 PM
by Myrna M. Velasco

The coal moratorium policy will be sustained under the Marcos administration, Energy Secretary Raphael Perpetuo Lotilla declared.

Source: https://mb.com.ph/2022/08/09/coal-moratorium-to-stay-under-marcos-admin-doe/

Philippines to Pilot Energy Transition Mechanism

The Philippines will pilot the Energy Transition Mechanism (ETM) project in Mindanao, where the Agus-Pulangi hydropower plants will be rehabilitated and expanded to enable the early retirement of coal-fired power plants.

"We have a unique opportunity in Mindanao, an island in the southern part of the Philippines, to demonstrate our carbon-reduction commitment. In Mindanao, the hydropower source has a huge potential," said Finance Secretary Carlos G. Dominguez at the recent COP26. "As we increase its (Agus-Pulangi) generating capacity, the ETM project will help us acquire coal-fired power plants on the island to repurpose them."

Coal accounts for 54% of the country's energy mix. In 2019, it produced 48% of carbon dioxide emissions. Dominguez said "reducing dependence on coal power is the fastest way to cut our carbon emissions."

Source: https://seads.adb.org/solutions/philippines-pilot-energy-transition-mechanism-mindanao

DOE releases Philippine Energy Plan

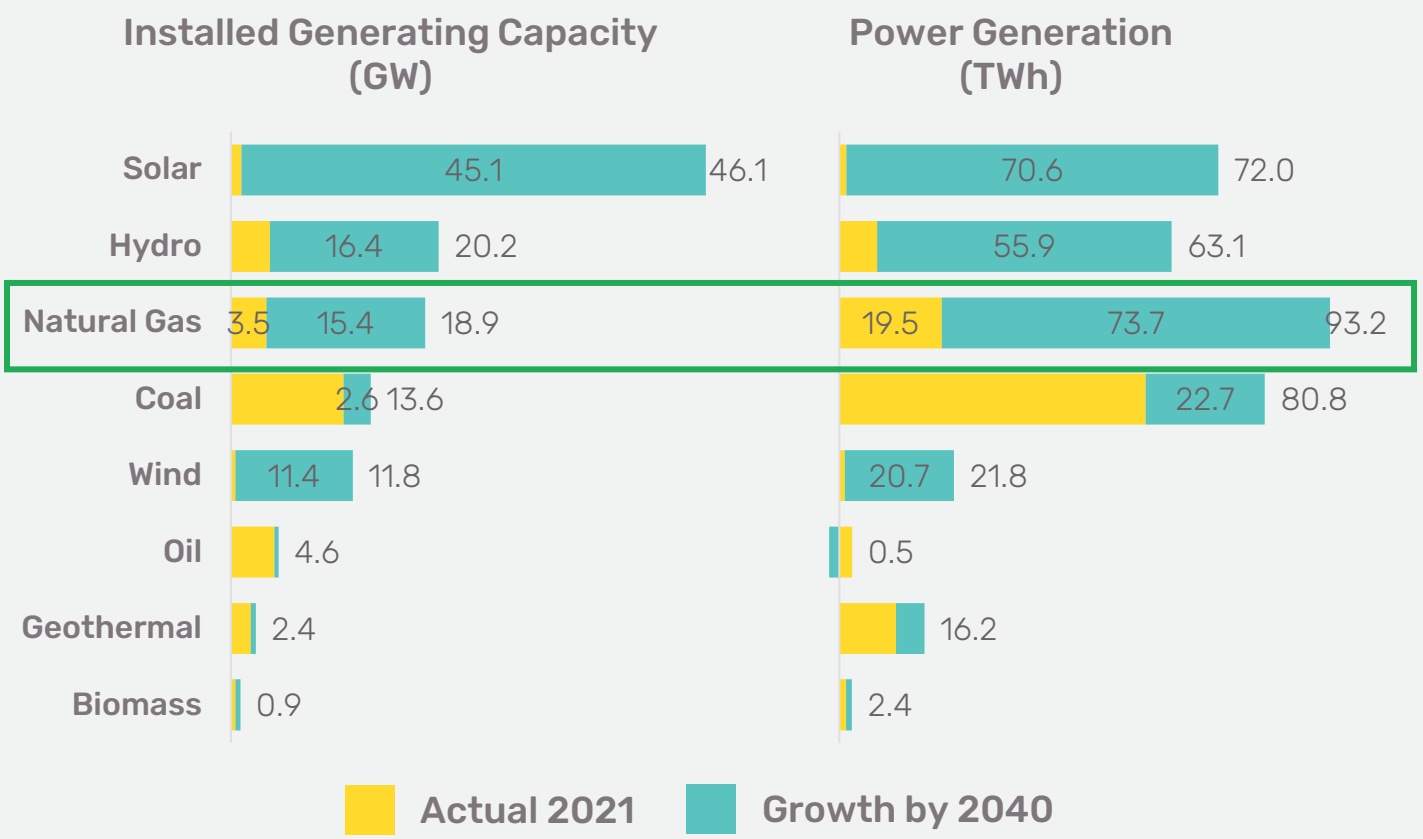
Government supports RE and Natural Gas

Excerpts from President Marcos Jr.'s first SONA

> "The use of renewable energy is at the top of our climate agenda. **We will increase our use of renewable energy sources such as hydropower, geothermal power, solar, and wind.**"

> "The enactment of an enabling law for the Natural Gas Industry… primarily seeks to foster the development of the Midstream Natural Gas Industry in a bid to **strengthen Philippine energy security by diversifying the country's primary sources of energy and promoting the role of natural gas as a complementary fuel to variable renewable energy…**"

Clean Energy Scenario of DOE's Philippine Energy Plan 2020 - 2040



Massive Growth in

Renewables: Solar, Wind and Hydro

+

Natural Gas

But amid role of gas as a complementary fuel to RE, Malampaya resource is depleting

BusinessWorld

Malampaya depletion expected by 1st quarter of 2027

May 19, 2021 | 8:35 pm

THE remaining reserves in the Malampaya gas field will be completely depleted by the first quarter of 2027, a senator said Tuesday, citing estimates from the Department of Energy (DoE).

"The Malampaya service contract is set to expire in 2024. Even if the service contract is extended, the DoE projects that the estimated 858,834 million standard cubic feet remaining in the Malampaya field as of Sept. 30, 2020 would be completely exhausted by the first quarter of 2027," Sen. Sherwin T. Gatchalian said in a speech sponsoring a bill regulating the development of the midstream natural gas industry on Tuesday.

Mr. Gatchalian chairs the senate committee on energy.

The Philippines "could be facing a major energy crisis in less than six years" unless it can find alternative sources for natural gas, and will have little choice but to import, Mr. Gatchalian added.

Located off the coast of Palawan, Malampaya is the country's sole natural gas field.

In his speech Tuesday in support of the proposed Senate Bill (SB) No. 2203 or the proposed Midstream Natural Gas Industry Development Act, Mr. Gatchalian said energy security "largely depends" on the available supply of natural gas, noting that more than a quarter of Luzon is powered by the fuel.

"Natural gas plants generated 56% of the 2.5-billion-kilowatt-hours purchased by Meralco (Manila Electric Co.) in April 2021, making natural gas the single most impactful electric power source for Metro Manila," he said.

He said natural gas should complement variable renewable energy sources, as outlined in the National Renewable Energy Plan's (NREP) latest draft covering 2021 to 2040.

In February, former Chairperson of the National Renewable Energy Board Monalisa C. Dimalanta said that the draft NREP is looking at increasing the share of renewable energy (RE) in the power mix "with higher flexibility in the system coming from natural gas plants all the way to 2030, with a slight decline by 2040."

The draft NREP has an RE targets of 37.3% by 2030, and 55.8% by 2040.

On Tuesday, Mr. Gatchalian raised SB 2203 to the plenary. — Angelica Y. Yang


Securing gas supply to support the energy security and transition
Trestles
Loading Platform
High Pressure Gas Pipeline
Gas Metering Area
Dolphins and Catwalks
Facility Control Building Area
Jetty Monitoring Building Area
Utility Platform

The energy industry is in a state of flux

Commodity price surge and supply tightness

(Russia-Ukraine war, Europe Energy crisis)

- Increase in Power generation costs and risk to energy security
- Pressure on players to meet contractual obligations / Greater appreciation for stable or predictable tariffs

Adverse macroeconomic environment

(Forex volatility, Stagflation risks, Interest rate hikes)

- Increased project development and/or operating costs
- Impact on project returns

Supply Chain Issues

(Covid-19 restrictions, Russia-Ukraine war)

- Increased project timeline delays and cost of materials

Commodity price surge and supply tightness

Adverse Macroenvironment

Supply Chain Issues

Depleting indigenous gas supply from Malampaya and lack of additional LNG infrastructure to support more gas as indicated in the PEP

Unreliable capacity from aging plants causing price spikes from forced outages

Unconducive environment resulting in underinvestment due to “unbankable” contracts and lack of offtake support for critical projects

Ensuring energy security and accelerating decarbonization require policy interventions and capability building

Improved Price Signals

- Optimal price caps
- Reserve market
- Ancillary Service Competitive Selection Process
- Mindanao WESM

Decarbonization Policies

- Coal moratorium and coal retirement
- Carbon pricing
- Accelerate EV adoption
- Electrification
- Energy efficiency
- Decarbonization targets

Promotion of Investments

- Support indigenous sources (geothermal, wind, solar, gas)
- Enhance grid transmission line connectivity
- Offtake support or incentives for critical projects or infrastructure development
- Energy mix for distribution utilities and electric coops
- Efficient PSA approval process

Retail Market Expansion

- Accelerate Retail Competition Open Access (RCOA)
- Increase customer learning
- From B2B to B2C
- Plan for contracting cycles

Photo credits: IEMOP, Nonie Reyes via BusinessMirror

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Thank you.