 <b>PhilRatings</b> PHILIPPINE RATING SERVICES CORPORATION	CREDIT RATING REPORT
	ENERGY DEVELOPMENT CORPORATION

**Date:** March 19, 2024  
**Analyst:** Fatima Elaine R. Magpantay-Pascual

5F ALGO Center  
 162 Leviste St., Salcedo Village  
 Makati City, Metro Manila  
 1227 PHILIPPINES

(632)8812-3210  
 (632)8812-3215

### NEW ISSUE CREDIT RATING

Proposed Issuance		
Amount	Tenor	Assigned Rating and Outlook
₱6 billion ASEAN Green Bonds, with an Oversubscription Option of up to ₱4 billion	3, 5, and 7 years	PRS Aaa Stable Outlook

### Use of Proceeds:

The proceeds shall be used to fund the Company's expansion plans.

### Rating Definition

Obligations rated PRS Aaa are of the highest quality with minimal credit risk. The obligor's capacity to meet its financial commitment on the obligation is extremely strong. PRS Aaa is the highest rating assigned by PhilRatings.

### Outlook Definition

An Outlook is an indication as to the possible direction of any rating change within a one-year period and serves as a further refinement to the assigned credit rating for the guidance of investors, regulators and the general public. A **Stable Outlook** is assigned when a rating is likely to be maintained or to remain unchanged in the next 12 months.

### MONITORING FOR OUTSTANDING ISSUANCES

Amount	Maturity Date (Original Tenor)	Interest Rate	Assigned Rating and Outlook
₱2.5 billion*	June 25, 2024 (3 years)	2.8565%	PRS Aaa Stable Outlook
₱2.5 billion*	June 25, 2026 (5 years)	3.7305%	PRS Aaa Stable Outlook
<b>Total Outstanding Bonds: ₱5.0 billion</b>			

\*Initial tranche of the Company's 3-year ASEAN Green Bonds Shelf Registration of up to ₱15 billion.

## RATIONALE

### a) Leading position as a pure renewable energy (RE) company

Energy Development Corporation (EDC; the Company) is the country's largest pure RE company, operating 1,169 megawatts (MW) of geothermal, 150 MW of wind, 132 MW of hydroelectric, and 12 MW of solar energy. The Company's total installed capacity of 1,463 MW accounts for approximately a fifth of the country's aggregate installed capacity from renewable sources.

The Company is considered the biggest geothermal energy generator in the Philippines. EDC's geothermal capacity accounted for 60% of the country's total installed geothermal capacity. Globally, the Philippines is one of the top geothermal producers next to the United States of America (US) and Indonesia.

EDC also has several geothermal projects lined up in the next five years. These projects are a combination of expansion of existing geothermal plants and greenfield project developments, some of which will be up for completion in 2024. The Company is also on the lookout for potential geothermal projects internationally. Although EDC recently exited from its geothermal projects in Peru, the Company is still working on pre-development activities for projects in Indonesia, and Chile. Moreover, it intends to diversify its power generation sources to include offshore wind and energy storage systems in the coming years.

### b) Strong parent company support and highly experienced management team

First Gen Corporation (FGen) remains as EDC's controlling shareholder. As of September 30, 2023, FGen's total voting and economic interests in EDC were at 65.0% and 45.8%, respectively.<sup>1</sup> FGen is one of the largest clean and renewable Independent Power Producers (IPP) in the country, with a total installed capacity of 3,481.9 MW. This was equivalent to about 12.3% of the Philippines' 2022 total installed power capacity amounting to 28,258 MW. In the first nine months of 2023 (9M2023), FGen's consolidated revenues from the sale of electricity amounted to \$1.9 billion, down by 5.2% from 9M2022. Such decline was attributed to lower liquid fuel and natural gas consumption and prices. Nonetheless, FGen's bottom-line grew from \$259.7 million in 9M2022 to \$361.5 million in 9M2023, recording a 39.2% increase. The improvement in net income was primarily driven by the reduced cost of electricity.

In addition to strategic oversight from FGen, EDC is also supported by a strong and well-experienced management team who also holds key positions within the FGen group. Mr. Federico R. Lopez is the Chairman of the Board of EDC. He also serves as the Chairman of the publicly-listed companies, Lopez Holdings Corporation, First Philippine Holdings Corporation (FPH), and FGen. Mr. Lopez has been the Chairman of EDC since 2010 and is known for leading the Lopez Group to become a leader in energy security, sustainability, and clean technology for natural gas and renewable energy.

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<sup>1</sup> FGen's 3Q2023 Quarterly Report

Mr. Richard B. Tantoco, who served as President of EDC since 2009, stepped down from the position effective July 1, 2023 due to medical reasons. Mr. Jerome H. Cainglet, Senior Vice-President (SVP) of FGen, took on Mr. Tantoco's position as President. He also serves as President and Chief Operating Officer (COO) of various EDC subsidiaries, including: Bac-Man Geothermal Inc. (BGI), Unified Leyte Geothermal Inc. (ULGEI), and EDC Geothermal Corporation. Mr. Cainglet has been with the Lopez Group since 1990.

In line with Mr. Tantoco's resignation, Mr. Francis Giles B. Puno was appointed as EDC's CEO, a position previously held by Mr. Federico Lopez. Mr. Puno was likewise appointed as the Company's Vice-Chairman. He is also the Vice-Chairman and CEO of BGI, Green Core Geothermal Inc., and EDC Burgos Wind Power Corporation. Additionally, Mr. Puno concurrently serves as President and COO of FGen, FPH, First Philippine Industrial Park (FPIP), and other FGen subsidiaries. Prior to his appointment as President, Mr. Puno has been a director of EDC since 2007.

Mr. Erwin O. Avante, who remains as the Chief Financial Officer (CFO) of EDC, is also an SVP in FGen.

c) Strong operating cash flow and sufficient liquidity

EDC consistently posted positive net cash flows from operating activities. In 2023, cash flows from operations amounted to ₱25.0 billion, a 14.8% increase from 2022. Cash used in investing activities also grew in 2023, from ₱9.4 billion to ₱18.6 billion, on account of increased expenditure on property, plant, and equipment (PPE). Cash and cash equivalents were relatively stable at ₱17.4 billion as of end-2023, compared to ₱17.6 billion a year ago. The Company maintained adequate liquidity, with a current ratio of 1.3x and cash and cash equivalents to current debt ratio of 1.9x, as of end-2023.

d) Conservative capital structure

EDC continued to have a conservative debt-to-equity (DE) ratio of 0.7x as of end-2023. The Company's EBITDA interest coverage ratio was more than sufficient at 8.3x and the debt service coverage ratio (DSCR) was also more than adequate at 2.2x. Additional borrowings are expected in 2024, but the debt-to-equity ratio will remain below 1.0x due to the plowback of earnings.

e) Government's supportive policies in the renewable energy sector

EDC, with its 100% renewable portfolio, is well-positioned given the growing demand for renewable energy as the country transitions to a low-carbon economy. The Department of Energy (DOE) has been working on the implementation of several RE Programs to achieve the target of reaching a renewable energy share of 35% in 2030 and 50% in 2040. Some of the policies implemented are the increase in the minimum annual RE percentage increment required to be sourced by on-grid power suppliers (i.e., power distribution utilities and electric cooperatives) from eligible RE resources, from minimum of 1% to 2.52%, the lower Retail Competition Open

Access (RCOA) threshold, the Green Energy Auction Program (GEAP), and the Green Energy Option Program (GEOP).

## BUSINESS PROFILE

EDC is the largest vertically integrated geothermal developer in the world, operating from the steamfield up to the power plant. It has evolved into a leading pure RE company, with business interests in geothermal, wind, hydroelectric, and solar energy. It is involved from the exploration and development of RE sources, to its operation and utilization for electricity generation. As of December 2023, the Company had over 1,463 MW total installed capacity, which made up about a fifth of the country's aggregate installed capacity from renewable sources. Details on the power projects directly and indirectly operated by EDC are shown in Table 1.

Table 1. Power Generating Assets (as of December 31, 2023)

Contract Area	Project	Acquisition Method (Year)	Installed Capacity (MW)*	Minimum Energy OffTake (GWh/year)	Expiration of Offtake Agreement	Expiration of GRES/ WESC/ SESC
<b>Geothermal</b>						
Leyte Geothermal Project	Mahanagdong	BOT (2007)	198.1	N/A	2031 (GRSC) 2040 (PSAs)	2031
	Upper Mahiao		112.1 <sup>1</sup>			
	Malitbog		232.6			
	Optimization		30.0			
	Tongonan	Bidding (2009)	123.0	N/A		
Mt. Apo Geothermal Business Facility	Mindanao I	BOT (2009)	54.2	41.5	2025 (PSAs)	2042
	Mindanao II		54.2	398	2024 (PPA)	
	Mindanao III	Developed / Constructed (2022)	3.7	N/A	N/A <sup>2</sup>	
Southern Negros Geothermal Project	Palinpinon I	Bidding (2009)	112.0	N/A	2031 (GRSC) 2040 (PSAs)	2031
	Palinpinon II		60 <sup>3</sup>			
	Nasulo	Developed/Plant Transferred (2014)	49.4		2033 (PSAs)	
Bac-Man Geothermal	Bac-Man I	Bidding (2010)	120 <sup>4</sup>	723	2026 (SSA) <sup>5</sup>	2031
	Bac-Man II		20.0	131	2037 (PSAs)	
<b>Total Geothermal Capacity</b>			<b>1,169</b>			
<b>Hydroelectric Power</b>						
Pantabangan/Masiway	Pantabangan-Masiway	Acquisition (2008)	132	N/A	2024-2026 (PSAs) 2026-2027 (PSGFAs) 2028 (ASPA)	2031
<b>Wind Power</b>						
Wind Business Facility	Burgos Wind	Developed / Constructed (2014)	150	N/A	2034 (REPA)	2034
<b>Solar Power</b>						
Solar Business Facility	Burgos Solar I	Developed / Constructed (2015)	4.2	N/A	2035 (REPA)	2039
	Burgos Solar II	Developed / Constructed (2016)	2.7	N/A	2036 (REPA)	
Solar Rooftop Project	Siklab	Developed / Constructed (2017)	5.2	N/A	2043 (SRLA)	2042
<b>Total Solar</b>			<b>12.0</b>			
<b>Total Installed Capacity</b>			<b>1463</b>			

Based on the Certificates of Compliance (COCs) or Provisional Authorities to Operate (PAO) issued by the ERC, where "installed nameplate capacity" is defined as "full-load continuous gross capacity of a unit under specified conditions, as calculated from the electric generator nameplate based on the rated power factor x x x" pursuant to ERC Resolution No. 16, Series of 2014.

<sup>1</sup> Does not include Unit 3 (37.36 MW); unit was offline during ERC's virtual inspection held on 20 August 2020

<sup>2</sup> Generation from Mindanao III is sold as a support to contracts of Mindanao I

<sup>3</sup> Palinpinon II includes Sogongon 1, Sogongon 2 and Okoy 5 GPPs. PAO for Sogongon 1 & 2 was issued on 4 November 2020 while PAO for Okoy 5, integrated in Palinpinon-1 GPP PAO, was issued on 4 February 2021; does not include 20-MW Nasuji GPP (on preservation mode)

<sup>4</sup> Based on Dependable Capacity of 60 MW per unit, as indicated in the Provisional Authority to Operate (PAO) issued by the ERC on 6 October 2020

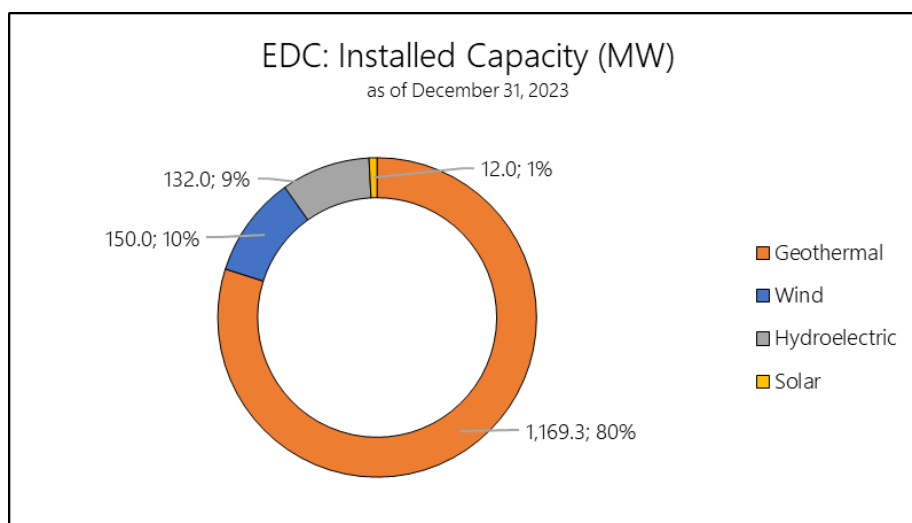
<sup>5</sup> EDC is in the process of extending the interim Steam Supply Agreement (SSA) with Bac-Man I and II for another 3 years or until Dec. 2026.

EDC is primarily engaged in the generation and sale of electricity through Company-owned power plants. Its customers include: the National Power Corporation (NPC), the National Grid Corporation of the Philippines (NGCP), National Transmission Corporation (TransCo), privately-owned distribution utilities (DU), electric cooperatives (EC), large industrial clients and retail electricity suppliers (RES). EDC holds short-term to long-term offtake agreements in various forms with these customers. Generated electricity in excess of contracted levels is sold to the Wholesale Electricity Spot Market (WESM).

EDC is the largest producer of geothermal energy in the Philippines, with a combined geothermal capacity of 1,169 MW as of end-2023. This was slightly lower compared with the 1,189 MW geothermal capacity in 2021. The 19.5 MW decrease in capacity was attributed to the decommissioning of the Tongonan-1 Topping Cycle Power Plant in Leyte. The plant was decommissioned in July 2023 due to deficient high-pressure steam caused by a natural decline in steam production.

Geothermal projects continue to form the core of the Company's operations, representing 80% of its total installed capacity. The Company's long-standing relationships and/or expertise spans the entire geothermal value chain, from geothermal energy exploration and development, reservoir engineering and management, engineering design and construction, to environmental management and energy research and development.

Figure 1. EDC's Installed Capacity, by source



The Company's geothermal capacity accounts for approximately 60% of the country's total installed geothermal capacity. Globally, the Philippines is one of the top geothermal producers next to the US and Indonesia.

EDC aims to have the majority of its geothermal portfolio contracted. With the upcoming expiry in 2024 of the Power Purchase Agreement (PPA) with NPC for Mindanao II, EDC is pursuing forward contracts with Contestable Customers in the recently implemented RCOA in Mindanao. For the expiring Power Supply Agreements (PSA) of Mindanao I in 2025, the Company intends to continue its strategy to engage in

contracts, maintain its relationship with existing clients, and offer renewal rates at par with the prevailing market rates.

### Geothermal Power Plants

EDC has several geothermal projects lined up in the next five years. These projects are a combination of expansion of existing geothermal plants and greenfield project developments. Areas identified by the Company are listed in Table 2. Under the Binary Projects, EDC is pursuing the installation of binary technology<sup>2</sup> to increase the output capacity of its existing geothermal plants.

Table 2. Upcoming Geothermal Power Plants Projects

Project	Location	Estimated Additional Capacity	Target completion
Palayan Bayan Binary Project	Bacman	28.9	4Q2023 <sup>1</sup>
Mahanagdong Binary Project	Leyte	28	4Q2024
Tanawon Geothermal Project	Bacman	20	4Q2024
Bago Binary Project	Negros	5.8	3Q2024

<sup>1</sup> 99.5% of overall construction and 77.07% of testing and commissioning works were completed

EDC has three binary projects – the Mindanao III, Palayan Bayan, and Mahanagdong Binary Projects. The Mindanao III (M3) Binary Facility became operational in April 2022, whereas the mechanical construction for Palayan Bayan Binary Project was completed in November 2023. The Palayan Bayan Binary Project is currently undergoing the final phases of testing and commissioning works. The additional capacities for this project have been contracted to a contestable customer until 2025.<sup>3</sup> The Company has also laid the groundwork for the Mahanagdong Binary Project. In July 2022, the Mahanagdong Binary Project was granted Joint Crediting Mechanism (JCM) funding. The commercial operations for this plant are expected to begin in the fourth quarter of 2024 (4Q2024). These binary plants are expected to contribute to EDC's goal of maximizing the steam production of the Company's existing assets.

Other geothermal projects include: the 20 MW Tanawon Geothermal Project, an expansion of the BacMan power plant in Bicol, and the Bago Binary Geothermal Power Plant (BBGPP) Project. The Tanawon project went through contract negotiations in 2021 and was awarded a subsidy under the JCM of Japan amounting to JPY1.6 billion (₱640 million) in exchange for a portion of its carbon credits for fifteen (15) years from start of its commercial operations. Engineering work preparations and planning for this project commenced in 2023, with the target commencement of commercial operations set in December 2024.

The Company also kicked off the Bago Integrated Project in Northern Negros. The Bago Integrated Project is comprised of the BBGPP, a 5.8 MW binary geothermal plant, and a 10 MWh battery energy storage

<sup>2</sup> Binary cycle is one of the three geothermal power plant technologies used to convert hydrothermal fluids to electricity. Binary cycle power plants transfer the heat from geothermal hot water to another liquid. The heat causes the second liquid to turn to steam, which is then used to drive the turbines that generate electricity.  
(Source: <https://www.eia.gov/energyexplained/geothermal/geothermal-power-plants.php>)

<sup>3</sup> EDC's 2022 Lenders Briefing

systems (BESS). The 5.8 MW geothermal plant is expected to be ready for operations by 3Q2024. BESS projects/developments will be discussed in a separate section of this report.

EDC also pursued the Leyte Steam Exchange (LeytEx) project. This project was an optimization scheme employed by the Company to adapt to the changing reservoir conditions of the Tongonan geothermal field. It was one of the management's alternatives for expansion drilling by capitalizing generation uplift potential from existing production sectors while also preserving resource sustainability. The LeytEx project was commissioned in phases, starting in 2021 until May 2022. The total value delivery of the LeytEx Project is 46MW since its commissioning in 2022. The pipelines are continuously being used to sustain the production of the cut-in wells and provide flexibility in the Company's steam supply.

EDC continues to look out for other potential geothermal projects to expand its geothermal power capacity, both in the domestic and international space. Locally, EDC also holds Geothermal Service Contracts (GSC) for the areas in Table 3.<sup>4</sup>

*Table 3. Geothermal Service Contract Areas/Projects*

Project	Location
Amacan	Mindanao
Mount Zion	Mindanao
Mainit-Sadanga	Mountain Province
Buguias-Tinoc	Benguet/Ifugao
Sembrano	Rizal/Laguna

The Amacan Geothermal Power Project is located in the province of Davao de Oro. In November 2022, the Company secured a grant from the US Trade and Development Agency (USTDA) for a feasibility study on the Amacan project. In 2023, EDC signed a Memorandum of Agreement (MOA) with the National Commission on Indigenous Peoples (NCIP) and the concerned Indigenous Peoples (IPs) of Maco, Mabini, and Nabunturan municipalities. The Company also received the Environmental Compliance Certificate (ECC) and its Provisional Forest Land Use Agreement (FLAg). As of end-2023, EDC is constructing the roads and pads in preparation for the expected rig mobilization and exploration drilling in 2024. The project is expected to provide an additional capacity of approximately 70 MW. According to the management, the source of funding will likely be equity for the initial exploration phase, and project financing, corporate term loans, or climate financing for the construction and development.

Mt. Zion 2 Geothermal Power Project is located in the provinces of North Cotabato and Davao del Sur. This is part of the Mt. Apo National Park which is a protected area. To allow geothermal development, EDC took measures to reclassify the management zoning of the project area. In July 2022, the Protected Area Management Board (PAMB) approved the reclassification of the proposed project area into multiple-use zones. As of end-2023, the Company is in various permitting and pre-development works. The estimated capacity of the project is 49 MW. Similar to Amacan, the source of funding will likely be equity

<sup>4</sup> <https://www.thinkgeoenergy.com/edc-announces-five-year-geothermal-capacity-expansion-plan/>

for the initial exploration phase, and project financing, corporate term loans, or climate financing for the construction and development.

In 2021, the DOE granted EDC the Mainit-Sadanga Geothermal Power Project (Mainit-Sadanga Project). The project has a total area of 12,069 hectares (ha) that encompasses various barangays in Sadanga and Bontoc, Mountain Province. The Mainit-Sadanga Project was given a pre-development period of seven years ending in 2028, and a 25-year contract period ending in 2046, with the possibility of renewal for another 25 years.

The GSCs for the Buguias-Tinoc Geothermal Power Project (Buguias-Tinoc Project) and Mt. Sembrano Geothermal Power Project (Sembrano Project) were also awarded by the DOE to EDC in December 2023. The Buguias-Tinoc Project is located in the municipalities of Benguet and Ifugao, while the Sembrano Project is situated in the municipalities of Rizal and Laguna. Buguias-Tinoc Project has a total area of 10,854 ha, while Sembrano has a total area of 9,882 ha.

Currently, Mainit-Sadanga, Buguias-Tinoc, and Sembrano are in the process of obtaining permits and clearances from local government units (LGU), NCIP, and other stakeholders needed for the conduct of resource assessment.

### International Geothermal Development Plans and Investments

#### *Indonesia*

In June 2018, PT EDC Indonesia (EDCI), a subsidiary of EDC, was awarded Preliminary Survey and Exploration (PSPE) rights over the Graho-Nyabu geothermal working area in Sumatra, Indonesia. Under the PSPE Work Program, EDCI will complete all surface studies, design and construct the roads and drilling pad, and drill at least two exploration wells for a period of three years, extendable by one year. The Company internally estimates the capacity of this resource at about 100 MW. The construction of civil works infrastructure for site access is expected to begin in 2024, after which, the exploration drilling operations will commence. EDC intends to start with the power plant by 2028 and targets commercial operations date by the end of 2030.

#### *Peru*

EDC holds two geothermal concessions in Peru. The Company intended to develop the 110 MW Achumani Geothermal Power Plant and the 110 MW Quello Apacheta Geothermal Project, with exploration drilling to start in 2022 and commercial operations in 2027. On May 25, 2023, the Company announced that Energy Development Corporation Peru S.A.C., a subsidiary of the Company, will no longer pursue the geothermal projects in Peru. The political instability due to the impeachment of Peruvian President Pedro Castillo and market factors such as the low local energy prices were cited as the main factors for the exit. Mr. Tantoco, the Company's then President, however, clarified that EDC is not completely exiting from its Peru projects. He stated that EDC will prioritize investment in the domestic energy market in the meantime but will restart the Peru development when the market, regulatory environment, and incentives are aligned.<sup>5</sup>

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<sup>5</sup> <https://www.bworldonline.com/corporate/2023/06/05/526638/edc-plans-to-drill-two-geothermal-prospects/>

### *Chile*

The Company is also in the early stage works for the 110 MW Mariposa Project in central southern Chile. EDC undertook a market study update to evaluate the potential development of the project.

### **Hydroelectric Power Plant**

The Company indirectly operates the 132 MW Pantabangan-Masiway Hydroelectric Power Plant located in Nueva Ecija, through its 60% ownership stake in First Gen Hydro Power Corporation (FG Hydro). FG Hydro provides ancillary services to NGCP under an Ancillary Services Procurement Agreement (ASPA), and sells electricity through various power supply contracts. The ASPA of FG Hydro with NGCP expired in March 2023. In May 2023, FG Hydro and the NGCP entered a new ASPA with a term of five years. The Energy Regulatory Commission (ERC) provided provisional authority for the new ASPA on August 15, 2023, and implementation began in September of the same year. Pantabangan-Masiway is one of the power suppliers for the 100 MW PSA with the Manila Electric Company (Meralco), a 5-year contract which began in December 2019, which was subsequently assigned to EDC.

FG Hydro is also looking into developing Project Aya, a 120 MW pumped-storage hydroelectric project in the province of Nueva Ecija. The project is expected to store and generate energy by pumping water between the Pantabangan reservoir and the Masiway reservoir. The technology will allow water to be discharged for as long as 12 hours and can be pumped even during off-peak hours, which will secure more reliable grid operations despite having intermittent plants come onto the grid. Although Project Aya is a hydro project, it functions similarly to a battery system. According to then-President, Mr. Tantoco, the project can potentially become the country's largest battery system.<sup>6</sup> The target completion of the project is in 4Q2027.

### **Wind Power Plant**

EDC also owns and operates a wind (150 MW) and solar farm (6.8 MW) located in Burgos, Ilocos Norte. Both the Burgos Wind Energy Project and the Burgos Solar Projects were granted a Feed-In-Tariff (FIT) Certificate of Compliance by the ERC. FIT is a guaranteed payment in Philippine Peso per kilowatt-hour (kWh) for electricity generated from emerging RE technologies and delivered to the transmission and/or distribution network. The Burgos Wind Energy Project is entitled to an initial FIT rate of P8.53 per kWh. The two-phased Burgos Solar Project is entitled to FIT rates of P9.68 per kWh for Phase 1 and P8.69 per kWh for Phase 2.

In early 2023, EDC's six planned wind projects with a combined capacity of 2,680 MW were given clearance by the DOE to conduct a system impact study (SIS). Four of the proposed wind projects (2,448 MW) are in the Visayas and include onshore and offshore wind power projects in Iloilo, Negros Occidental and Guimaras.<sup>7</sup> The remaining two projects (232 MW) are in Ilocos Norte. These projects are currently undergoing evaluation for the transmission connection options, in line with the latest developments in NGCP's transmission projects.

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<sup>6</sup> <https://powerphilippines.com/edc-to-proceed-with-100mw-hydro-project-in-nueva-ecija/>

<sup>7</sup> <https://www.thinkgeoenergy.com/edc-announces-five-year-geothermal-capacity-expansion-plan/>

### Solar Power Plant

In 2017, EDC started to generate electricity from its 1,030 kilowatts (kW) solar rooftop system in Gaisano Capital’s mall in La Paz District, Iloilo. From 2016-2018, EDC Siklab, a wholly-owned subsidiary of EDC, entered into eight Solar Rooftop Lease Agreements (SRLA) with HEVA Management Development Corporation (HEVA). These SRLAs state that EDC Siklab will construct, install, test, commission, operate and maintain solar power facilities in Gaisano Capital’s malls in Passi, Ormoc, Sogod, Sorsogon, Tacloban, Kalibo, Oton and Balasan. HEVA will then lease these facilities for a period of 25 years. In 2018, EDC Siklab’s solar rooftop projects in Gaisano Capital’s malls in Passi, Kalibo, Oton and Balasan started commercial operations, while the Gaisano Tacloban Solar Rooftop Project was terminated. As of end-December 2023, all seven sites with SRLAs are in commercial operation.

### Battery Energy Storage Systems (BESS)

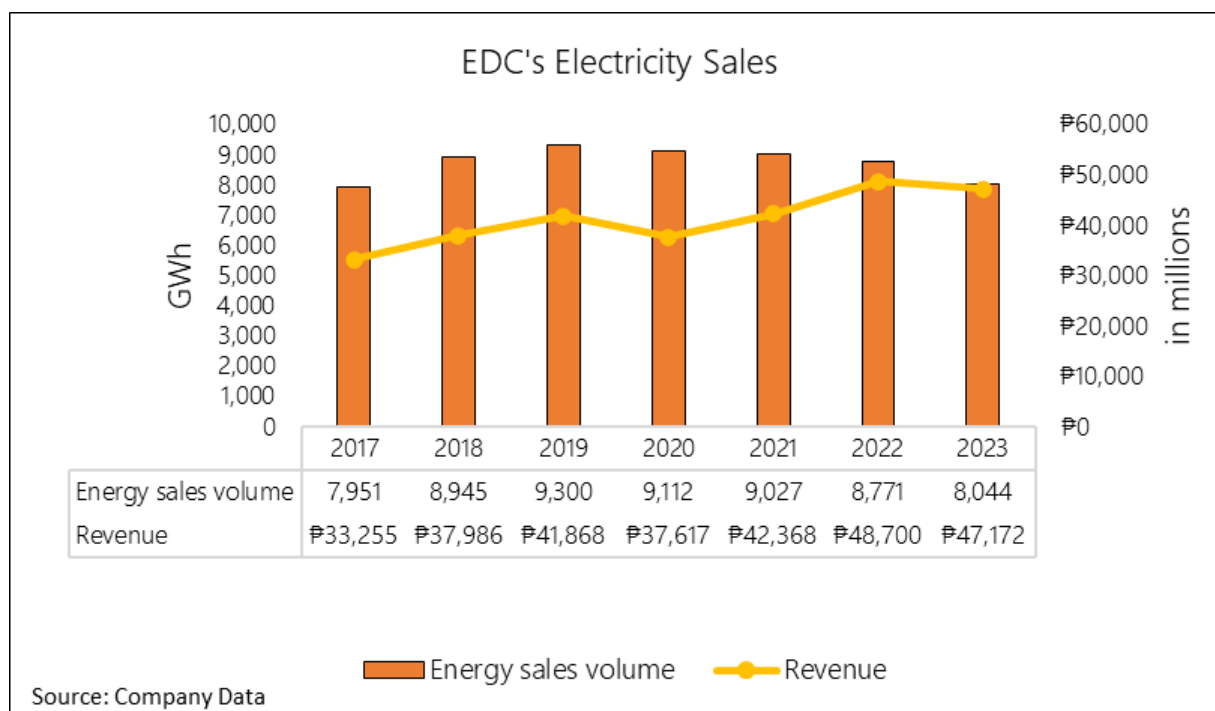
EDC is building three BESS collocated at the Company’s existing facilities in Bac-Man, Tongonan and Southern Negros. The Company will be installing 20 MWh BESS in Bac-Man, 10 MWh in Tongonan, Leyte, and 10 MWh in Southern Negros. The target operational date for these pioneer battery projects is by the end of 2024.

Meanwhile, the 10 MWh BESS in Negros Occidental, part of the Bago Integrated Project, is expected to be operational by 2026.

### Operating Highlights

#### Electricity Sales

Figure 2. Electricity Sales



Since the onset of the pandemic in 2020, the volume of energy sold by EDC continued to decrease from 9,112 gWh in 2020 to 8,044 gWh in 2023. According to management, the declining electricity sales volume was due to the lower steam availability in Leyte since 2021. FG Hydro also had lower volume due to the decreased reservoir level and lower irrigation diversion requirements of the National Irrigation Administration (NIA). (Analyst's Note: Please refer to the Strategy section for further details on the Company's initiatives to address the declining steam.)

Nevertheless, EDC was able to book increased revenue from 2020-2022 due to the elevated WESM prices. In 2023, the Company recorded a marginal decline of 3.1% in its revenue, attributed to the continued decline in energy sales volume and the moderate increase in prices. Unlike 2021 and 2022, whereby most of the Company's facilities recorded a double-digit price increase, 2023 price increases were restrained mostly in single digits. The exception was Mt. Apo Geothermal (Mindanao 1,2,3) Facility, driven by the price increase in the Mindanao III facility.

Unified Leyte (Upper Mahiao, Malitbog, Mahanagdong, Optimization) continued to generate a substantial portion of EDC's energy volume, accounting for 23.2% of the total volume in 2023. Such is a 38.2% decline from the volume generated in 2020. Bacman and Tongonan 1 came in second and third, contributing 21.8% and 19.0% of the total energy volume, respectively. Bacman and Tongonan 1 generated improved volumes from 2020 to 2023.

In terms of contribution to total revenue, Unified Leyte, Bacman, and Tongonan had shares of 21.8%, 20.8%, and 19.9%, respectively.

Detailed information on revenue and volume contribution per facility is in Table 4.

Table 4. Electricity Sales for 2020-2023

Project	2020				2021				2022				2023			
	Volume (GWh)	Price/kWh	Revenues (millions PHP)	% of revenue	Volume (GWh)	Price/kWh	Revenues (millions PHP)	% of revenue	Volume (GWh)	Price/kWh	Revenues (millions PHP)	% of revenue	Volume (GWh)	Price/kWh	Revenues (millions PHP)	% of revenue
Leyte	3,025	3.55	10,752	29%	2,681	3.81	10,206	24%	2,685	5.19	13,926	29%	1,868	5.50	10,276	21.8%
Mindanao 1	403	3.41	1,373	4%	654	3.55	2,320	5%	212	3.16	668	1%	310	4.68	1,448	3%
Mindanao 2	318	3.23	1,026	3%					396	3.46	1,369	3%	329	3.85	1,267	3%
Mindanao 3	-	-	-	-	-	-	-	-	3	2.62	7	0%	26	5.42	143	0%
Nasulo	304	3.19	969	3%	281	4.57	1,285	3%	375	6.28	2,352	5%	323	6.30	2,032	4%
Tongonan 1	899	4.13	3,717	10%	897	5.11	4,584	11%	982	5.90	5,791	12%	1,532	6.12	9,386	19.9%
Palinpinon 1 & 2	1,582	4.73	7,479	20%	1,433	5.36	7,674	18%	1,614	6.16	9,947	20%	1,334	6.05	8,066	17%
Bacman	1,344	3.65	4,901	13%	1,706	4.53	7,723	18%	1,783	5.25	9,369	19%	1,754	5.59	9,792	20.8%
Pantabangan-Masiway	492	3.68	1,810	5%	735	4.95	3,638	9%	408	5.66	2,311	5%	202	6.06	1,239	3%
Burgos Wind	367	11.70	4,295	11%	416	9.47	3,942	9%	299	9.45	2,829	6%	352	9.65	3,392	7%
Solar (Burgos, Siklab)	16	10.03	158	0%	16	8.89	141	0%	15	8.72	131	0%	15	8.95	130	0%
ULGEI (40 MW Strips)	362	3.14	1,137	3%	208	4.12	856	2%	0	0.00	0	0%	0	-	0	0%
Total	9,112		37,618	100%	9,027		42,368	100%	8,771		48,700	100%	8,044		47,172	100%

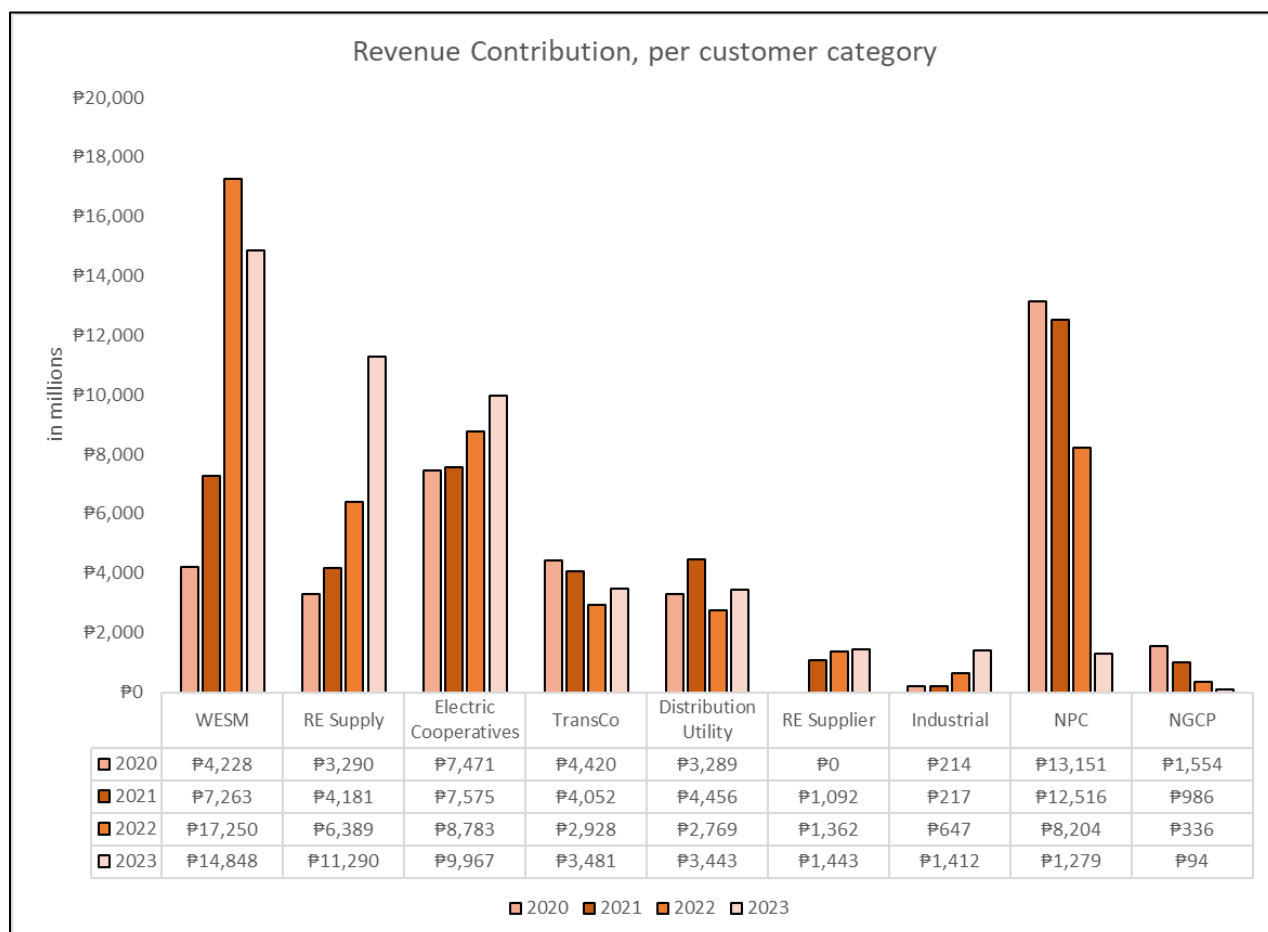
## Customer Profile

As of end-2023, EDC's total number of customers increased to 366 from 133 in 2020. The increase was driven by the additional Retail Electricity Supply (RES) customers as a result of the reduced RCOA threshold in 2021 and the implementation of the GEOP in 2022. (Analyst's Note: Please refer to the Industry section for further details on the GEOP and RCOA threshold). EDC was able to supply approximately 107 GEOP customers<sup>8</sup> at the start of the GEOP implementation in 2022. It should be noted that GEOP contracts are

<sup>8</sup> EDC's 2022 Lenders' Briefing Presentation

relatively smaller in size. Nonetheless, the segment has low competition, as it can only be served by renewable generators.

Figure 3. Customer Profile



Until 2021, NPC was EDC's biggest customer, accounting for 29.5% of the Company's total revenue for that year. NPC is a government-owned and controlled corporation mandated to provide power generation and associated power delivery systems in areas that are not connected to the main grids. EDC originally had three 25-year PPAs with NPC covering Unified Leyte and Mindanao Geothermal Power Projects. Under the PPA, NPC is obligated to pay for a minimum quantity of electricity pursuant to its take-or-pay and minimum offtake energy obligations. As of end-2023, the only remaining PPA contract with NPC is for Mindanao II which is also set to expire in June 2024.

Table 5. Expiry Date of PPAs with NPC

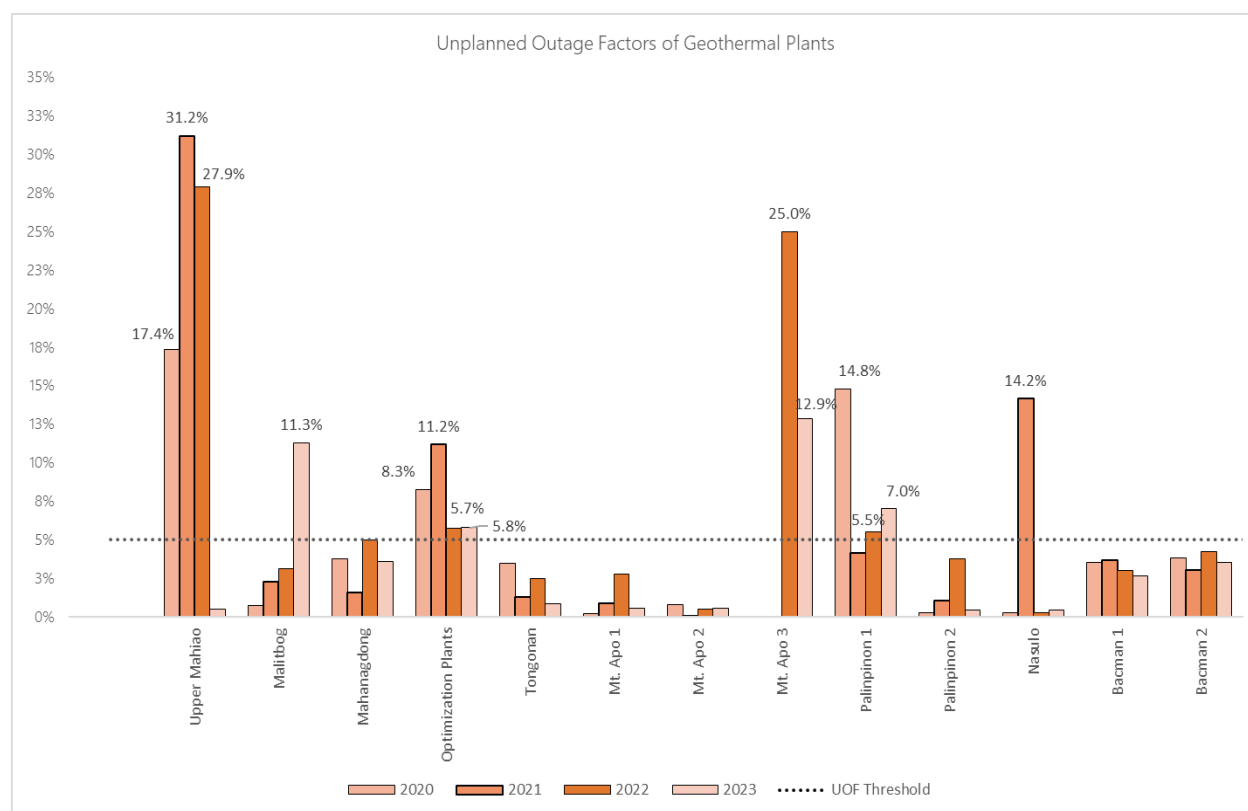
PPAs	Expiry Date	Annual energy
Unified Leyte A	July 25, 2021	1,370 GWh
Unified Leyte B	July 25, 2022	3,000 GWh
Mindanao I	February 15, 2022	390 GWh
Mindanao II	June 17, 2024	398 GWh

Due to the expired PPA contracts in 2022, the revenue share of NPC dropped to 2.7% as of end-2023. On the other hand, the revenue share from WESM almost doubled to 31.4%, from ₱7.3 billion in 2021 to ₱14.8 billion in 2023. Such made WESM EDC's biggest customer in terms of revenue contribution. Aside from PPAs with NPC, the Company, through its subsidiaries, also generates a significant share of revenue through PSAs with private DUs, ECs, RES, and industrial customers.

Energy sales volume from combined bilateral contracts and WESM sales dropped by 8.6% to 8,020 GWh in 2023 from 8,773 GWh in 2021. Nonetheless, energy sales improved to ₱47.1 billion from ₱41.4 billion in 2021, further increasing the share of bilateral contracts and WESM revenue from 97.7% to 99.8% of the total revenue. The balance of 24 GWh sales volume in 2023 was sold to NGCP as contingency and dispatchable reserves under ASPA, generating ₱90 million in revenue.

### Unplanned Outage Factor (UOF)

Figure 4. Unplanned Outage Factors of Geothermal Power Plants



Upper Mahiao, which recorded high outage levels in the past years, notably recorded a below 5% outage in 2023. The minimal outage occurred because Upper Mahiao was only running two units in 2023. The other two units were in reserve shutdown. Nasulo, which recorded a 14.2% outage in 2021,<sup>9</sup> likewise posted much improved UOFs below 1% in 2022 and 2023. The Optimization Power Plants also exhibited

<sup>9</sup> According to ERC, Nasulo Power Plant incurred 22.64 days of unplanned outages and was fined ₱1.022 million.

a significant improvement from the 11.2% outage in 2021, although its UOF remained slightly above the target outage level.

On the other hand, Palinpinon 1 Plant's UOF gradually increased, from 4.3% in 2021 to 7.0% in 2023. Malitbog, which had UOFs below the threshold from 2020 to 2022, breached the threshold with a UOF of 11.3% in 2023. Such was due to the extended shutdown of one of its units due to the needed rings off for the generator. Similarly, M3—which became operational in 2022—continued to exceed the 5% UOF threshold in 2023, as it experienced a forced outage due to acid dosing issues. Nevertheless, as of end-2023, the average UOF for all of EDC's plants was below the 5.0% target.

### Strategy

EDC's long-term strategy is to secure contracts for majority of its geothermal portfolio. The Company also remains committed to improving its competitiveness in an increasingly retail-oriented market. To prepare for the expiring PPAs in 2021 and 2022, the Company pre-contracted the expiring NPC capacities through: a) Competitive Selection Processes (CSP) participation; b) Replacement power to DUs/ECs; and c) Increased contracts within the growing retail segment.

EDC has been participating in several CSPs initiated by DUs/ECs. In 2022, EDC was awarded a 10-year contract to supply electricity in Bohol starting 2024. According to the bidders, only EDC met the required 50.83 MW of dependable power which will be sourced from Unified Leyte Geothermal Power Plant.<sup>10</sup> In 2023, EDC continued to participate in CSPs and was awarded contracts with various DUs like ILECO I, BATELEC II, DECORP and MORE Power.

In addition, the Company's focus in the next three years is to make sure that it can deliver the amount of geothermal energy source required by its customers. In relation to this, the Company plans to allot \$1 billion to drill new wells and expand its geothermal output. Geothermal power plants need hydrothermal resources coming from dry steam wells to produce energy; hence, the new drillings could safeguard continuous extraction of steam from the ground in the coming years. EDC is expected to drill approximately 40 new wells across Leyte, Albay, Sorsogon, and Mt. Apo. Mr. Puno also added that the drilling would be done in phases and funding would be a combination of internally generated funds and loans.<sup>11,12</sup>

Aside from the binary projects, the Company implemented the following key initiatives to address the declining steam, which was experienced since 2021:

- a) Updating the optimum production and injection configuration for all four fields and adjusting programs to build up and maintain target production;

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<sup>10</sup> <https://manilastandard.net/business/power-technology/314241281/edc-wins-bohols-10-year-electricity-supply-contract.html>

<sup>11</sup> <https://www.pds.com.ph/wp-content/uploads/2023/09/Disclosure-No.-3755-2023-Clarification-of-News-Article-EDC-earmarks-S1-billion-for-new-well-drillings.pdf>

<sup>12</sup> <https://philippinedailyinquirerplus.pressreader.com/article/281925957634875>

- b) Proving the productivity of Leyte make-up well<sup>13</sup> areas and identifying new make-up wells targets for Mt. Apo and Negros;
- c) Innovating resource and asset management by implementing trickle injection initiatives in Leyte, testing corrosion resistant materials for acidic wells, as well as fielding non-rig workover alternatives; and
- d) Investing in equipment and surface repairs that ensure fast return to service of wells that need to be shut or cut out from the system.

EDC is also working on improving the safety and efficiency of its drilling operations. The Company had acquired newly certified rigs to accelerate the drilling program and keep the steam build up on track with the long-term plans.

### **Ownership and Management**

FGen, the Lopez Group's power generation company, remains as EDC's controlling shareholder. As of September 30, 2023, FGen's total voting and economic interests in EDC were at 65.0% and 45.8%, respectively.<sup>14</sup>

FGen is one of the country's biggest power generators, with a mostly RE portfolio. As of end-September 2023, FGen had a gross installed capacity of 3,481.9 MW, inclusive of EDC's, which was equivalent to about 12.3% of the Philippines' 2022 total installed power capacity amounting to 28,258 MW. In 9M2023, FGen's consolidated revenues from the sale of electricity amounted to \$1.9 billion, down by 5.2% from 9M2022. Such decline was attributed to lower liquid fuel and natural gas consumption and prices. FGen's bottom-line, however, grew from \$259.7 million in 9M2022 to \$361.5 million in 9M2023, recording a 39.2% increase for the period. The improvement in net income was primarily driven by the reduced cost of electricity.

FGen's consolidated assets stood at \$5.6 billion as of end-September 2023, with property, plant and equipment valued at \$2.6 billion. Ample liquidity level was maintained, as the current ratio and quick ratio settled at 1.8x and 1.4x, respectively. FGen's capitalization structure was also conservative, with a debt-to-equity ratio of 0.5x as of end-September 2023.

In 2023, EDC's long-time President, Mr. Richard Tantoco, stepped down from his position due to medical reasons. Consequently, the Company made changes to its senior leadership effective July 1, 2023.

Following Mr. Tantoco's resignation, Mr. Jerome H. Cainglet was appointed as EDC's new President, alongside his current position as the Company's COO. Additionally, Mr. Federico Lopez transitioned from being EDC's Chairman and CEO to solely being the Chairman of the Board, while Mr. Francis Giles B. Puno was appointed as EDC's new CEO.

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<sup>13</sup> Make-up wells are production wells drilled inside an already confirmed reservoir to maintain steam production in a certain level. (Source: [https://www.researchgate.net/publication/322374944\\_Make-up\\_wells\\_drilling\\_cost\\_in\\_financial\\_model\\_for\\_a\\_geothermal\\_project](https://www.researchgate.net/publication/322374944_Make-up_wells_drilling_cost_in_financial_model_for_a_geothermal_project))

<sup>14</sup> FGen's 3Q2023 Quarterly Report

Mr. Jerome Cainglet, the Company's new President and COO is also an SVP in FGen and serves as Director, SVP, and Deputy COO of various EDC subsidiaries including, BGI, ULGEI, and EDC Geothermal Corporation. Mr. Cainglet has been with the Lopez Group since 1990 when he first joined FPH. He holds a Bachelor of Science degree in Chemical Engineering from the University of the Philippines and an Executive Master of Business Administration degree from the Asian Institute of Management.

Mr. Federico R. Lopez, who remains to be the Chairman of the Board of EDC, also serves as the Chairman of publicly-listed companies, Lopez Holdings Corporation, FPH, and FGen. Mr. Lopez has been the Chairman of EDC since 2010 and is known for leading the Lopez Group to become a leader in energy security, sustainability, and clean technology for natural gas and renewable energy. Mr. Lopez graduated Cum Laude from the University of Pennsylvania with a Bachelor of Arts degree in Economics and International Relations.

Mr. Francis Giles B. Puno, the Company's new CEO and Vice-Chairman, also serves as the Vice-Chairman and CEO of BGI, Green Core Geothermal Inc., and EDC Burgos Wind Power Corporation. He is also the President and COO of FGen, FPH, and FPIP. Prior to his appointment as President, Mr. Puno has been a director of EDC since 2007. Mr. Puno holds a Master of Management degree from the Kellogg Graduate School of Management of Northwestern University and a Bachelor of Science degree in Business Management from the Ateneo de Manila University.

Mr. Erwin O. Avante remains as the CFO of EDC. Mr. Avante is also an SVP in FGen and was a member of the Board of Trustees of the CFA Society of the Philippines. Mr. Avante holds a Master of Business Administration degree and Master of Science in Computational Finance degree from De La Salle University and is a CFA Charterholder.

### **Environmental, Social, and Governance (ESG) Initiatives**

In line with the Company's identity as a sustainable company, EDC allocates resources to initiatives aimed at protecting the environment and uplifting its partner communities. In 2023, EDC invested a total of ₱122 million for its Corporate Social Responsibility (CSR) endeavors across its project sites. EDC's CSR initiatives focus on education (SIKAT), environmental conservation/protection (BINHI), and the upliftment of indigenous peoples (IP). In 2023, EDC allocated ₱30 million for the SIKAT program and ₱27 million for the BINHI Program.

The BINHI program is EDC's banner environmental program. It is one of EDC's key initiatives to achieve a decarbonized and regenerative future. BINHI is a nationwide reforestation program aimed at restoring degraded forests in the country by propagating and planting threatened native tree species. Through this program, EDC partners with local communities, academic institutions, civil society groups, and government agencies to promote biodiversity and forest management. As of end-2023, EDC had partnered with 216 BINHI partners, cultivated 272,443 high-quality seedlings, and established 41 arboreta.<sup>15</sup>

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<sup>15</sup> A piece of land dedicated to the cultivation of trees and shrubs.

Moreover, the Company launched and established the Net Zero Carbon Alliance (NZCA) in September 2021 to help its partners achieve carbon neutrality. The NZCA framework enables its participants to share best practices, increase their capacity for emission reduction, and improve access to green financing. NZCA's pioneer members were Arthaland Corporation, Drink Communications, First Balfour, Knowles Corporation, Silliman University, and Unilever Philippines. In 2022, in its first year of operation, EDC's NZCA had six additional partners, namely, Converge ICT Solutions Inc., Ecolab, INAEC Aviation Corporation, Menarco Development Corporation, SGV & Co., and The Linden Suites. EDC has been reporting greenhouse gas emissions since 2011.

EDC also conducts initiatives focused on improving the welfare of its host communities. EDC's SIKAT Program provides financial assistance and mentoring support to 499 scholars across its project sites. The scholarship also provides laptops and monthly internet allowances to facilitate distance learning. The program, likewise, offers job preparedness webinars and job placement assistance for its graduates, with the aim of developing its scholars into a workforce-ready community. For the academic year 2023-2024, EDC provided financial assistance to 132 scholars at the University of the Philippines and other local universities. The Company also has an adopt-a-scholar program, which supports 10 of the 132 SIKAT scholars. In 2023, SIKAT program produced 39 graduates from its geothermal sites and 11 graduates from the Obo Manobo indigenous community in Mindanao. EDC also supports 349 individuals in Negros Island through technical-vocational training programs and 70 scholars from Sorsogon through the BGI Tanawon Geothermal Project College Scholarship Program.

The Company, likewise, allots resources for the upliftment of IP communities. Such activities include providing local scholarships and livelihood programs for IP communities in Mt. Apo, as well as royalties for Manobo Apao Descendants of Ancestral Domains of Mount Apo (MADADMA).

In terms of governance, EDC was compliant with all the recommendations on corporate governance policies and practices provided under the Securities and Exchange Commission (SEC) Corporate Governance Code for publicly-listed companies.<sup>16</sup>

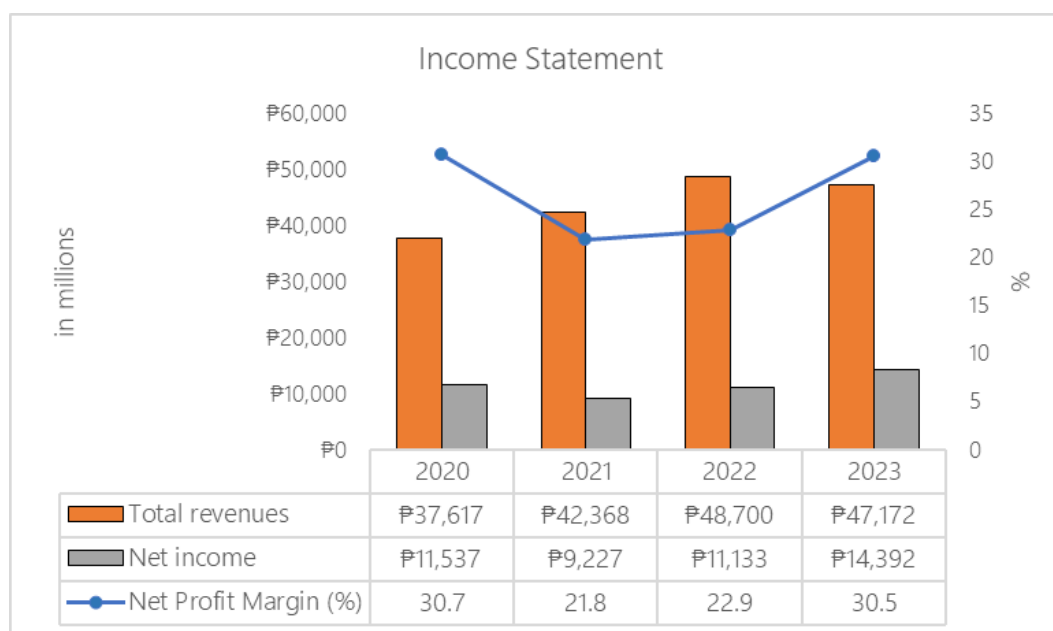
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<sup>16</sup> [https://www.energy.com.ph/wp-content/uploads/2023/11/20230525-SEC-Form-ACGR-1\\_Redacted.pdf](https://www.energy.com.ph/wp-content/uploads/2023/11/20230525-SEC-Form-ACGR-1_Redacted.pdf)

## FINANCIAL PROFILE

### Profitability

Figure 5. Income Statement Items



### 2022

In 2022, consolidated revenue from the sale of electricity went up by 14.9% YoY to ₱48.7 billion. Such was still attributed to higher WESM prices. Costs of sale of electricity increased from ₱24.6 billion in 2021 to ₱26.6 billion in 2022, translating to a 7.9% uptick. This was significantly lower compared with the 41.5% jump in cost of sales in 2021. General and administrative expenses also increased by 12.8% to ₱6.4 billion. Operating income consequently jumped by 30.4% to ₱15.7 billion from ₱12 billion in 2021. Operating margin also improved from 28.4% to 32.3%.

Net financial expenses decreased by 6.7% or ₱188.0 million to ₱2.6 billion. This was driven by the increase in interest income due to higher interest on cash and cash equivalents, debt service reserve account and other short-term investments.

Other charges amounted to ₱170.2 million in 2022, as opposed to a ₱1.0 billion other income in 2021. Such was attributed to lower insurance claims which dropped by ₱855.5 million, from ₱1.1 billion in 2021 to ₱194.9 million in 2022. The insurance claims were in relation to damages and business interruptions caused by machinery breakdowns and calamities which includes the Leyte earthquake, Typhoon Yolanda, and Typhoon Urduja.

In 2022, EDC recorded a 20.7% increase in its net income, from ₱9.2 billion in 2021 to ₱11.1 billion. Net profit margin similarly improved from 21.8% to 22.9%. ROAA and ROAE also increased to 7.7% and 15.5%, respectively.

EBITDA interest coverage and DSCR improved to 7.9x and 1.9x, respectively.

## 2023

Total consolidated revenue dropped by 3.1% to ₱47.2 billion in 2023. This was primarily driven by the 8.0% drop in electricity sales volume from Unified Leyte, mainly due to lower steam availability. Cost of sales also dropped in 2023 to ₱22.6 billion, which was 15.1% lower compared to the previous year. The 15.1% decline was attributed to the lower replacement power purchases from WESM in 2023. General and administrative expenses, on the other hand, grew marginally by 7.0% to ₱6.8 billion. Such was on account of higher business and related expenses. Due to the notable decline in the costs of sale of electricity, EDC recorded a 13.0% increase in operating income, from ₱15.7 billion in 2022 to ₱17.8 billion in 2023. This resulted in an improved operating margin, from 32.3% in 2022 to 37.6% in 2023.

Net income grew to ₱14.4 billion in 2023, a 29.3% increase from the ₱11.1 billion net income in 2022. Net profit margin, ROAA, and ROAE all showed continued improvement in 2023 at 30.5%, 9.1%, and 18.1%, respectively.

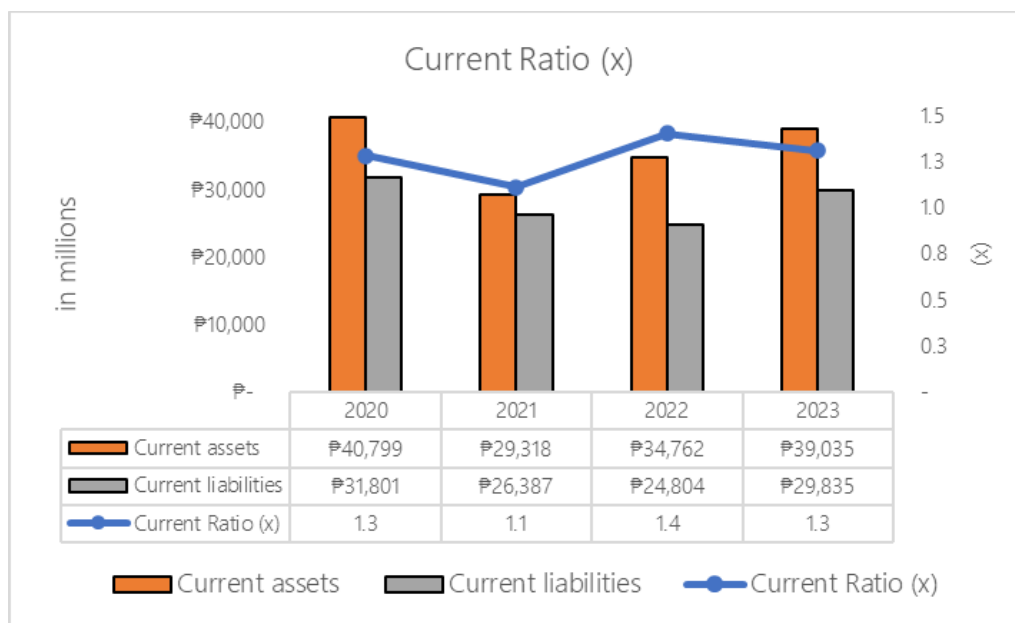
Similarly, EBITDA coverage and DSCR increased and remained more than sufficient in 2023 at 8.3% and 2.2x, respectively.

### Projected Period

Over the projected period, revenues are expected to continue to grow driven by the completion of EDC's projects and adjustments in tariffs. Margins are likewise expected to remain healthy.

### Cash Flow and Liquidity

Figure 6. Current Ratio (x)



## 2022

Despite the higher operating income before working capital changes, net cash generated from operations in 2022 decreased by 7.4% to ₱21.8 billion. The higher operating income was offset primarily by the sizable increase in accounts receivable and the lower decrease in other current assets pertaining to short-term

investments. Net cash used in investing activities also declined by 9.6% to ₱9.4 billion. The decrease was attributable to lower disbursements for acquisitions of PPE.

Net cash flows used in financing activities likewise decreased by 58.4% from ₱21.1 billion to ₱8.7 billion. The drop was driven by the lower cash dividend payment as well as higher proceeds from the availment of long-term debts.

Cash and cash equivalents as of end-2022 amounted to ₱17.6 billion, 25.6% higher than a year ago. Cash and cash equivalents to current debt ratio improved from 1.1x as of end-2021 to 2.0x as of end-2022. Current and acid test ratios also increased to 1.4x and 1.0x, respectively.

### **2023**

In 2023, EDC's net cash from operating activities amounted to ₱25.0 billion, a 14.8% increase from ₱21.8 billion in 2022. This was attributed to the higher income before taxes as well as improved collections and a higher increase in the Company's trade and other payables.

Net cash flow used in investing activities almost doubled from ₱9.4 billion in 2022 to ₱18.6 billion in 2023, driven by the significant increase in PPE acquisitions. Such acquisitions were funded through internally generated funds and additional loans.

Net cash flows used in financing activities declined to ₱6.5 billion in 2023, from ₱8.7 billion in 2022, on account of higher net proceeds from term loans availed during the year.

Due to the high PPE acquisitions in 2023, cash and cash equivalents as of end-2023 amounted to ₱17.4 billion, a marginal (1.1%) decline from the ₱17.6 billion cash balance as of end-2022.

### **Projected Period**

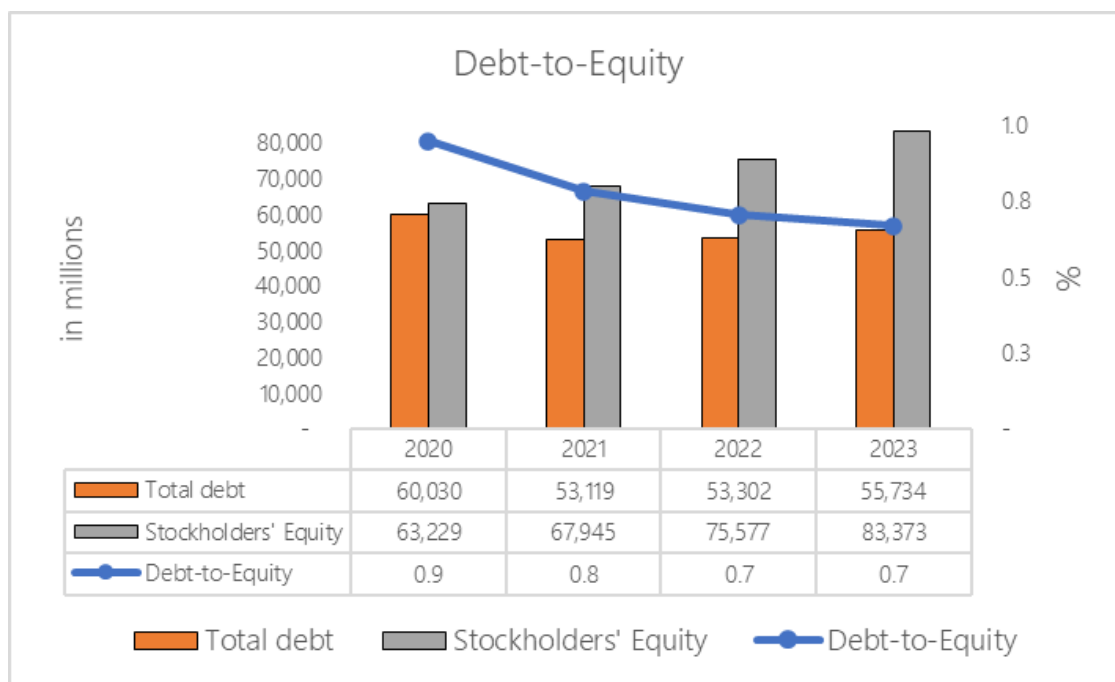
EDC expects to continue generating positive operating cash flows over the projected period. In line with its project pipeline, EDC is seen to invest accordingly in PPE in the coming years. These PPE acquisitions will be funded using a combination of internally generated funds and additional long-term loans.

EDC has outstanding Series A and B bonds amounting to ₱2.5 billion each, which will mature in 2024 and 2026, respectively. EDC intends to settle the maturing Series A bonds through additional borrowings and/or through the Company's internally generated funds.

Over the projected period, the Company is also expected to consistently distribute dividends.

## Debt and Capital Management

Figure 7. Debt-to-Equity



### 2022

EDC remained conservatively capitalized as of end-2022, with a debt-to-equity ratio of 0.7x. Total debt was relatively unchanged from ₱53.1 billion as of end-2021 to ₱53.3 billion. As of end-2022, 16.4% of the Company's total debt was denominated in USD. EDC had ₱2.8 billion in long-term USD denominated loans, which is equivalent to 5.2% of the consolidated total long-term loans. EDC Burgos Wind Power Corporation (EBWPC), a subsidiary of EDC which has a USD functional currency, had ₱6.0 billion in long-term USD-denominated loans as of the same date, which is equal to 11.2% of the consolidated total long-term debt.

Total equity expanded by 11.2% to ₱75.6 billion, driven by the 10.4% increase to ₱62.0 billion in retained earnings. A notable amount of increase in cumulative translation adjustment (₱969 million) was also seen in 2022 due to the adjustments from international subsidiaries and local subsidiary with USD functional currency.

Consolidated assets stood at ₱150.0 billion as of end-2022, up by 7.7% from end-2021. Asset expansion was supported by the 18.6% growth to ₱34.8 billion in current assets. Such was on account of the 25.6% improvement in cash and cash equivalents from ₱14 billion as of end-2021 to ₱17.6 billion as of end-2022. PPE also increased from ₱96.2 billion to ₱100.9 billion, mainly from power plants, Fluid Collection and Recycling System (FCRS) and Production Wells.

## 2023

As of end-2023, debt-to-equity ratio remained at 0.7x. Total debt was slightly higher at ₱55.7 billion while the total equity grew by 10.3% to ₱83.4 billion, attributed to continued earnings retention. Total consolidated assets grew by 10.8% to ₱166.3 billion, driven by the higher PPE for the period.

### Projected Period

EDC's conservative capital structure is seen to be supported by its continuous plowback of earnings over the projected period.

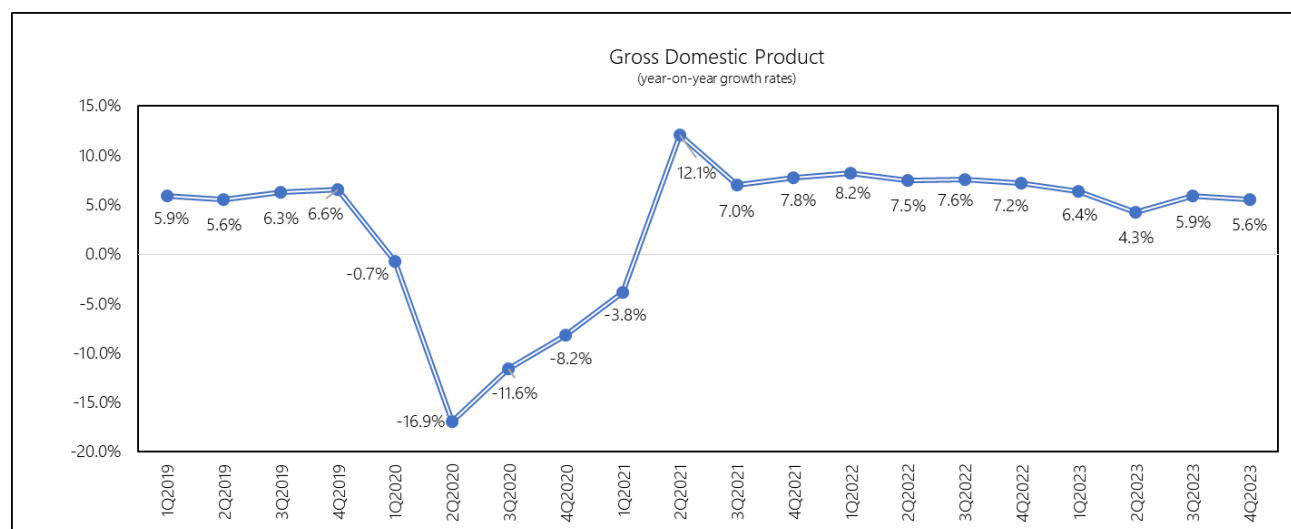
### Financial Flexibility

As of December 31, 2023, EDC had a significant amount of available bank lines and other credit facilities, which the Company could tap should the need arise.

## ECONOMY AND INDUSTRY

### Economy

Figure 8. Historical GDP



## 2022<sup>17,18</sup>

The Philippine economy ended 2022 with the fastest growth recorded since 1976. Full-year 2022 Gross Domestic Product (GDP) expanded by 7.6%, which marginally exceeded the government's target of 6.5% to 7.5%. The country also emerged as the third fastest-growing economy in the region in 2022, next to Malaysia's 8.7% and Vietnam's 8.0%.

Among the three major economic sectors, Services recorded the highest growth at 9.2%, primarily driven by the growth from wholesale and retail trade; repair of motor vehicles and motorcycles (8.7%). The Industry sector likewise grew by 6.5% on the back of the strong rebound of the construction and

<sup>17</sup> <https://psa.gov.ph/content/gdp-expands-72-percent-fourth-quarter-2022-and-76-percent-full-year-2022>

<sup>18</sup> <https://www.philstar.com/business/2023/06/14/2273615/moodys-raises-philippines-2023-growth-target>

manufacturing industries. The Agriculture sector grew by 0.5%. Albeit minimal, this was an improvement from the contraction in 2020 and 2021.

Despite rising inflation in 2022, Household Final Consumption Expenditure (HFCE) posted growth throughout the year. Such growth was attributed to the reduced pandemic restrictions, pent-up demand, improved labor market conditions, and the full re-opening of the economy. In 4Q2022, however, HFCE grew slower at 7.0%, compared to the recorded growth of 7.5% in 4Q2021. Nonetheless, full-year household consumption jumped by 8.3%, an improvement from the 4.2% growth in 2021. The strong rebound in hotel and restaurant spending contributed the most to such growth in HFCE.<sup>19</sup>

Government Final Consumption Expenditure (GFCE) also recorded sustained growth in 2022, albeit at a slower pace. GFCE grew by 4.9% in 2022, compared to 7.2% in 2021.

## 2023

In 2023, the Philippine economy grew by 5.6%. This is slower compared with the 7.6% growth in 2022 and short of the government's growth target of 6.0% to 7.0%.

Agriculture, forestry, and fishing grew by 1.5%, a significant improvement from the minimal growth in 2022 at 0.5%. The Industry and Services sectors, on the other hand, recorded slower growths compared to 2022, expanding in 2023 by 7.2% and 3.6%, respectively.

The top contributors to the 2023 growth are wholesale and retail trade; repair of motor vehicles and motorcycles, financial and insurance activities, and construction which expanded by 5.5%, 8.9%, and 8.8%, respectively.

HFCE expanded by 5.6% in 2023, slower compared with 8.3% in 2022. HFCE growth slowed down for seven consecutive quarters, from a growth rate of 10.0% in 1Q2022 to 5.1% in 3Q2023. Household consumption, however, recorded a slight uptick to 5.3% in 4Q2023 backed by robust growth in spending for restaurants and hotels, transport, and recreation. Contrarily, there has been slow growth in food spending due to elevated food prices, despite recent moderation in inflation.

GFCE was relatively flat, recording a 0.4% growth in 2023. This was much lower than the growth recorded in 2022 and the preceding quarter which were at 4.9% and 6.7%, respectively. Such was attributed to the fiscal consolidation program as well as the absence of election-related spending in 2023.

Nonetheless, the country was Southeast Asia's fastest-growing economy in 2023, surpassing Vietnam and Malaysia which held the top spots in 2021.<sup>20</sup>

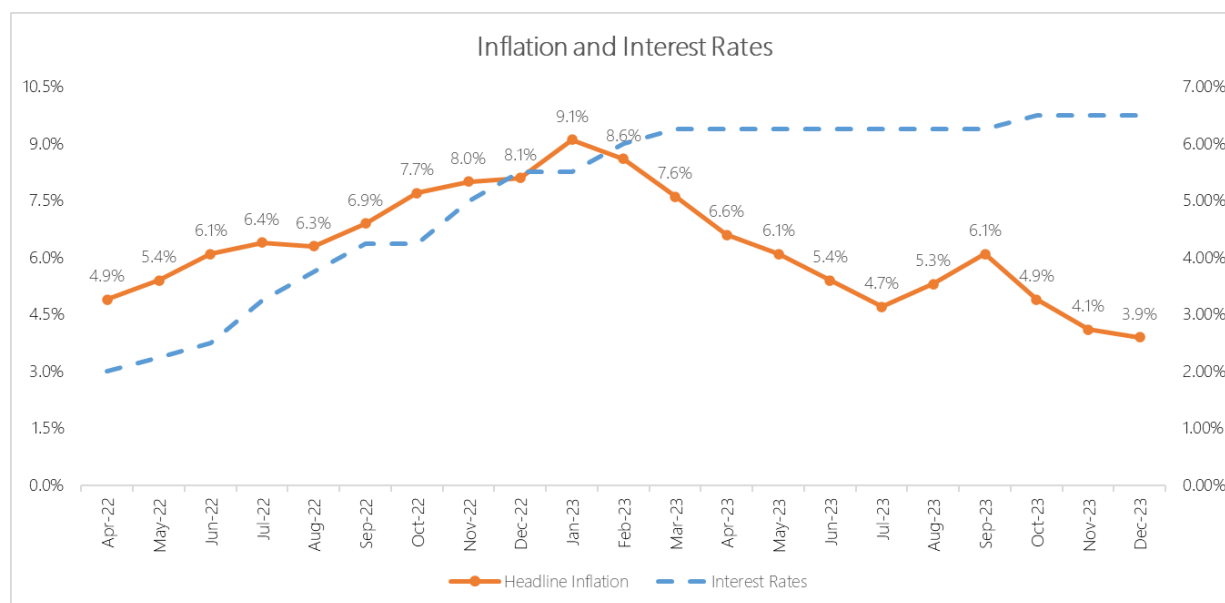
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<sup>19</sup> <https://www.philstar.com/opinion/2023/03/02/2248578/strong-economy>

<sup>20</sup> <https://www.bloomberg.com/news/articles/2024-01-31/philippine-economy-grows-faster-than-expected-5-6-last-quarter>

## Inflation and Interest Rates<sup>21</sup>

Figure 9. Historical Headline Inflation and Interest Rates



After reaching a new all-time high in January 2023 at 9.1%, headline inflation settled at 3.9% in December 2023. This was the slowest since February 2022. This brought the year-to-date average inflation to 6.0%, slightly higher compared to the 5.8% average inflation in 2022. The 2023 average inflation, likewise, remained beyond the government's 2% to 4% full-year target.

According to National Statistician, Mr. Dennis S. Mapa, the December inflation was primarily influenced by a 1.5% increase in prices for housing, water, electricity, gas, and other fuels, which showed a slower pace compared to the 2.5% recorded in November. The food and non-alcoholic beverages also eased from 5.7% in November to 5.4% in December. Food inflation went down to 5.5% from 5.8%. In contrast, rice inflation accelerated to 19.6% from 15.8% in November.

The government expects the average inflation to settle at 3.7% and 3.2% in 2024 and 2025, respectively, within the 2.0%-4.0% target range. The private sector also sees inflation settling within the target, albeit forecasts are slightly higher than the government's, at 4.0% in 2024 and 3.5% in 2025.<sup>22</sup>

To mitigate the threats brought about by rising prices, the Bangko Sentral ng Pilipinas (BSP) had aggressively increased the policy rate from 2.25% in May 2022 to 6.25% in March 2023. The BSP maintained the benchmark rate at 6.25% as inflation continued to decelerate in the first half of 2023. Due to the inflation uptick in August and September, however, the Monetary Board decided to take an off-cycle decision to raise the interest by 25 basis points to 6.5% in October 2023. This rate was retained until the end of 2023.

<sup>21</sup> <https://www.dof.gov.ph/ph-inflation-further-declines-to-4-1-in-november-2023/>

<sup>22</sup> [https://www.bsp.gov.ph/SitePages/PriceStability/VisualIMPR/MonetaryPolicyReport\\_November2023.aspx](https://www.bsp.gov.ph/SitePages/PriceStability/VisualIMPR/MonetaryPolicyReport_November2023.aspx)

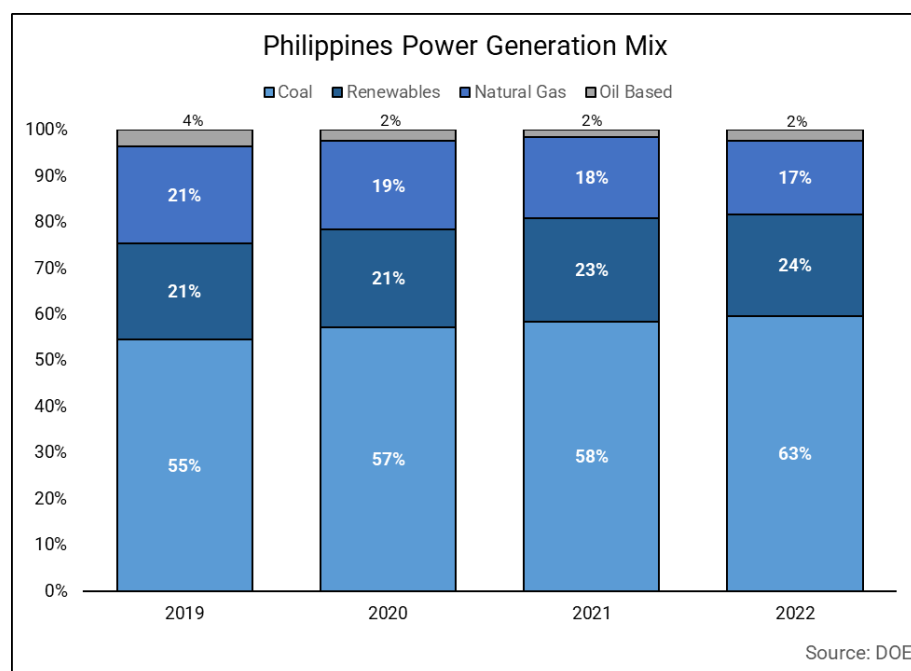
According to BSP Governor Eli Remolona, it might be necessary to keep the monetary policy tight to allow inflation to settle within the target range.<sup>23</sup>

### Industry<sup>24,25</sup>

As defined in the National Renewable Energy Program (NREP) 2020-2040, the Philippine government aims to increase the share of RE in power generation to 35% in 2030 and 50% in 2040. To achieve this, the country will need to install another 102 gigawatts (GW) of electricity capacity by 2040 including 27 GW solar, 17 GW wind, 6 GW hydro, 2.5 GW geothermal, and 364 MW biomass.

To further reach this goal, the government also banned the construction of coal-fired power generation facility projects in 2020. Existing coal-fired power plants, committed power projects, and indicative power projects with substantial permitting accomplishments, however, were still allowed to expand their facilities. The progression of these projects is expected to contribute to the continued expansion of coal generation in the years ahead, and therefore coal is projected to keep its position as the primary power source until 2031.<sup>26</sup>

Figure 10. Philippine's Power Generation Mix



As of end-2022, coal remained the dominant power source in the country, accounting for 63% of the total generation mix. Such was an increase from the 57% and 58% share in 2020 and 2021, respectively. Concurrently, renewable energy's total contribution also recorded a slight uptick, reaching 24% in 2022 compared to 21% in 2020 and 23% in 2021.

### Peak Demand

The country's total peak demand grew by 3.5% YoY to 16,596 MW in 2022, higher than the peak demand of 16,039 MW in 2021. In 2022, the Luzon grid accounted for 79.3% of the total demand, while Visayas and Mindanao had shares of 15.2% and 14.2%, respectively. Compared to the previous year, the peak

<sup>23</sup> [https://malaya.com.ph/news\\_business/bsp-no-unnecessary-monetary-tightening/](https://malaya.com.ph/news_business/bsp-no-unnecessary-monetary-tightening/)

<sup>24</sup> [https://www.doe.gov.ph/sites/default/files/pdf/energy\\_statistics/2021\\_power\\_statistics\\_01\\_summary.pdf](https://www.doe.gov.ph/sites/default/files/pdf/energy_statistics/2021_power_statistics_01_summary.pdf)

<sup>25</sup> <https://www.philstar.com/business/2022/10/21/2218102/philippines-poised-next-success-story-renewable-energy>

<sup>26</sup> <https://www.philstar.com/business/2022/04/07/2172922/philippines-ramp-clean-power-coal-remain-king-fitch-unit>

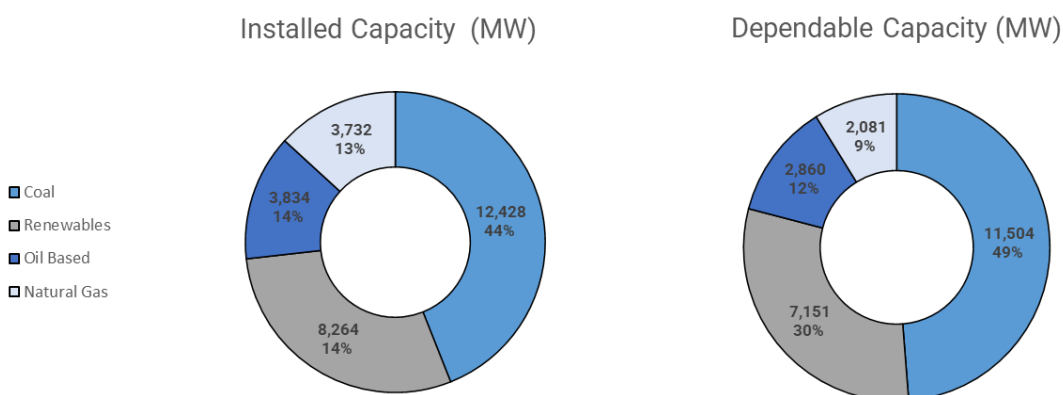
demand of Luzon increased by 4.1%, while Visayas and Mindanao recorded increases of 2.8% and 1.1%, respectively.

### Generation and Consumption

Total electricity generation and consumption reached 111,516 GWh by end-2022, a 5.1% increase compared to 106,114 GWh in 2021. The residential segment continued to be the main driver of electricity consumption, accounting for 33.3% of the total consumption. It was followed by the industrial and commercial segments, with 27.2% and 22.9% shares, respectively.

### Installed and Dependable Capacity

Figure 11. Installed and Dependable Capacity



The increase in power demand was supplemented by the growth in the country's supply base. The country's power supply, in terms of total installed capacity, increased by 5.1% from 26,882 MW in 2021 to 28,258 MW in 2022. A total of 1,375 MW was added to the country's supply base in 2022. Of the total additions, 759 MW was coal-fired, 279 MW was natural gas, 213 MW was solar, and 122 MW was biomass. In terms of dependable capacity, the Philippines had 23,598 MW in 2022, down by 1.1% from 23,855 MW in 2021. Coal-fired power plants still accounted for the bulk of total installed capacity with a share of 50.6%, followed by RE sources which contributed 31.5%. Power supply from RE sources predominantly came from hydropower plants, as it accounted for half of the installed capacity from RE technologies. Geothermal came in second, making up a quarter of the total installed capacity from RE sources.

### Private Sector Initiated Power Projects

As of end-2022, capacities from committed power projects amounted to 10,210 MW. The percentage share of committed capacity from coal has notably decreased in the past years from 72.5% in 2019 to 36.1% in 2022. On the other hand, share of committed capacities from RE has increased from 8.8% in 2019 to 29.2% in 2022. This was primarily brought by the increase in committed capacities from solar, which grew from 240 MW to 2,317 MW in 2022. Committed capacities from natural gas jumped from 11.4% in 2019 to 39.0% in 2020, then decreased to 34.3% as of end-2022.

Committed capacities from Energy Storage System (ESS) also noticeably increased since the framework for ESS integration in the electricity supply chain was implemented in 2019. The total committed capacities for such as of end-2022 was 2,080 MW, substantially higher than the 49 MW in 2019.

As of end-July 2023, total committed projects amounted to 9,985 MW. The share of coal further dropped to 23.1%, natural gas was relatively flat at 35.2%, while RE further grew to 40.9%. RE now takes up the highest share of the total committed capacities.

Capacities from indicative power projects, which pertain to those in the process of securing regulatory permits or closing a financing contract, stood at 54,856 MW as of the end of 2022. This was 57.1% higher than the indicative power in 2021. Around 80.0% of indicative capacities are expected to come from RE sources, an increase from the 62% share in 2020 and 50% in 2019.

As of end-July 2023, indicative power projects amounted to 62,776 MW. Majority or 80.0% of the indicative capacities are still expected to come from RE sources.

### Weather Conditions Affecting Power Generation

#### Solar Irradiance

The Philippines, due to its location near the equator, receives significant solar irradiance throughout the year.<sup>27</sup> Such makes the country ideal for solar and power collection and generation. The country's high irradiance levels also make solar photovoltaic (PV) systems an appealing and viable option for solar power generation. On average, the Philippines receives approximately 4.0 kWh/m<sup>2</sup> of solar radiation per day, making it one of the sunniest regions in the world.<sup>28</sup>

#### El Niño

In July 2023, the unusual warming of sea surface temperatures along the equatorial Pacific developed into a weak El Niño. Such intensified to moderate to strong conditions later in the year. Based on the rainfall data from August to December 2023, Cavite experienced drought, while 21 provinces in Luzon, including Nueva Ecija where EDC's hydro facilities are located, experienced meteorological dry spells. Abra, Metro Manila, and Occidental Mindoro, on the other hand, experienced dry conditions.<sup>29</sup>

Table 6. Categories of Meteorological Condition

Meteorological Conditions		
Drought	3-consecutive months of way below normal rainfall condition	>60% reduction from average rainfall
Dry Spell	3-consecutive months of below normal rainfall condition	21% - 60% reduction from average rainfall
Dry Condition	2-consecutive months of below normal rainfall condition	21% - 60% reduction from average rainfall

According to PAGASA's latest El Niño advisory, 14 provinces in Luzon experienced drought in January 2024. Additionally, the mean surface air temperatures observed across the country also ranged from near average to warmer than average. El Niño is expected to peak in April 2024. Of the country's 82 provinces, 56 are seen to experience drought and 19 are seen to experience dry spells.

<sup>27</sup> Solar irradiance is the amount of solar radiation received per unit area at the Earth's surface.

<sup>28</sup> [https://www.mspectrum.com.ph/potential\\_philippine\\_solar\\_energy\\_industry\\_for\\_business](https://www.mspectrum.com.ph/potential_philippine_solar_energy_industry_for_business)

<sup>29</sup> [https://pubfiles.pagasa.dost.gov.ph/pagasaweb/files/climate/dryspell/drought/DrySpell-Drought%20assessment-outlook\\_asof%20Sept%202023\\_issued%2010042023.pdf](https://pubfiles.pagasa.dost.gov.ph/pagasaweb/files/climate/dryspell/drought/DrySpell-Drought%20assessment-outlook_asof%20Sept%202023_issued%2010042023.pdf)

Nueva Ecija is likewise seen to continuously experience drought until April 2024. According to EDC's management, while El Niño may impact the volume of water entering the Pantabangan Dam, the NIA typically implements irrigation management initiatives to ensure water delivery to its service areas during El Niño. The generation of the FG Hydro facility is dependent on NIA's irrigation diversion requirements, which may increase during these times.

### Typhoons<sup>30</sup>

Typhoons are one of the major factors affecting wind power generation, as they bring heavy rains, strong winds, and storm surges. The extremely strong gusts produced by typhoons can damage wind turbines, leading to costly repairs and downtime. According to PAGASA, the Philippines experiences an average of 20 tropical cyclones per year, more than any other location globally. This frequency is also attributed to the country's geographical location and warm ocean waters.

In 2023, however, the Philippines only experienced 11 tropical cyclones, the lowest number recorded since 1948. Three of these cyclones strengthened to become super typhoons.

While most regions in the country are impacted by typhoons, landfall typically occurs in the western and northern provinces. Cagayan Valley, Bicol, and Eastern Visayas are the most affected areas, while western provinces like Palawan, Panay, or Negros experience typhoons less frequently.

### Geothermal

Geothermal energy relies on steam extracted from reservoirs deep beneath the Earth's surface. Unlike other renewable energy sources such as wind, solar, and hydro, geothermal energy is not directly affected by seasonal changes, climate variations, or weather conditions. Companies can, therefore, focus on maximizing steam production from existing assets. Notwithstanding this, certain geological factors, such as fault lines, groundwater flow, and tectonic activity, can still impact steam availability.

## **RE Policies and Programs**

### Retail Competition and Open Access (RCOA)

The Electric Power Industry Reform Act (EPIRA) of 2001 is a reform created by the government to provide a level playing field to all power industry participants and to achieve a reliable and competitive electricity market. RCOA is a mandate of EPIRA which opens retail competition to the power industry. Through RCOA, contestable customers<sup>31</sup> will have the option to choose and directly negotiate from their preferred RES, on a voluntary basis, as opposed to Captive Markets wherein contestable customers must stay with their respective DUs for their electricity requirements. Power retailing started in 2013 with a threshold level of 1 MW and up. This was subsequently brought down to 750kW to 999 kW (Phase II) in 2016 and to 500kW to 749kW (Phase III) in February 2021. The succeeding phases which were expected to reduce the threshold to 100kW in 2022 and 10kw in 2023, however, were not implemented. According to the then ERC Chairperson Agnes T. Devanadera, the availments were low and the patronage was not very bullish

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<sup>30</sup> <https://www.worlddata.info/asia/philippines/typhoons.php>

<sup>31</sup> Contestable Customers are large electricity end-users who was determined by ERC through their level of consumption and has given a certificate of contestability.

in the 500 kW threshold, thus, the ERC was not inclined to further reduce the threshold in 2022. In October 2023, newly appointed ERC Chairperson Monalisa C. Dimalanta conveyed that ERC will do a comprehensive study to assess the impact if the threshold for retail competition will be brought down to 100 kW.

Renewable Energy Act of 2008 is an act promoting to accelerate the utilization and development of renewable energy resources in the country. The two key policies in the RE sector, RPS and GEOP, are discussed below.

#### Renewable Portfolio Standards (RPS)

RPS is a market-based policy that requires participants to source an agreed portion of their energy requirements from renewable sources. Starting 2023, grid power suppliers must expand the renewable energy share in their output from 1% to 2.52% to be compliant with the RPS.<sup>32</sup> Such an increase could encourage more investors and end-users to develop and utilize domestic energy sources.

#### Green Energy Option Program (GEOP)

Another key component of the Renewable Energy Act of 2008 is the GEOP. This will allow electricity end-users with an average peak demand of at least 100kW to choose RE suppliers as their source of energy. With this, end-users are no longer constrained to only source their electricity supply from the distribution utility of their location. The program gives RE generators an opportunity for retail contracting. As of end-2022, 199 customers had switched to GEOP.

EDC's subsidiary, Bac-Man Geothermal, Inc. (BGI), and its affiliate, First Gen Energy Solutions (FGES), were the first two entities granted with a GEOP permit in 2020. In May 2021, the DOE also authorized Green Core Geothermal, Inc. (GCGI), wholly owned by EDC, to join the program and was awarded GEOP operating permits. GCGI will be allocating 200 MW to the program. As of February 2023, there were 19 RE suppliers under the GEOP.

#### Green Energy Auction Program (GEAP)

A renewable energy auction is where energy companies bid against each other for contracts to generate energy. The DOE issued a circular on the guidelines governing the GEAP to facilitate the selection of eligible renewable energy plants through a competitive process. Under the GEAP guidelines, the ERC will set a Green Energy Auction Reserve Price or "GEAR Price", which will be the maximum price offer in PHP/kWh.<sup>33</sup> In June 2022, the DOE, through the Green Energy Auction Committee, conducted the first GEA. A total of 19 contracts, which generated 1,966 MW of RE capacities committed from 2023-2025 at a price equal or lower than the prices set by the ERC, were awarded to various RE developers.<sup>34</sup> The said

Table 7. RCOA Threshold Implementation

	Threshold Level	Effectivity
Phase I	1mw & up	June 2013
Phase II	749 kW to 999kW	June 2016
Phase III	500 kW to 749 kW	February 2021
Phase IV	100 kW to 499 kW	January 2022*
Phase V	10 kW to 99 kW	January 2023*

\*not implemented

<sup>32</sup> <https://www.doe.gov.ph/sites/default/files/pdf/issuances/dc2022-09-0030.pdf>

<sup>33</sup> [https://www.doe.gov.ph/sites/default/files/pdf/renewable\\_energy/geap2-approved-tor\\_annex-a17-04-2023-183940.pdf](https://www.doe.gov.ph/sites/default/files/pdf/renewable_energy/geap2-approved-tor_annex-a17-04-2023-183940.pdf)

<sup>34</sup> <https://www.philstar.com/business/2022/11/02/2220821/doe-prepares-2nd-green-energy-auction>

auction recorded a 98.35% success rate given the 2,000 MW capacity requirement set for the auction round. In July 2023, the DOE conducted the second GEA (GEA-2) which generated 3,581 MW of RE capacities committed from 2024-2026. This was roughly 31% of the 11,600 MW that the DOE auctioned off in the program. Industry players and RE executives pointed out that the low price cap set by the DOE as the reason behind the poor turnout. RE developers had previously expressed concerns over ERC's low GEAR prices and requested an increase in price caps due to high development costs. According to Sun Asia Energy CEO Ms. Tetchi-Cruz Capellan, the prices set by the ERC do not reflect the current demand and supply of electricity in the country. She also added that such prices do not encourage developers to build up their capacities. Mr. Jose Layug Jr., co-chairman of the European Chamber of Commerce's renewable energy and energy efficiency committee, also pointed out that RE developers should also be given a practical timeframe to prepare for the bids.

Table 8. GEA-2 GEAR Prices and Committed Capacities

Energy Source	Preliminary price/kWh	Final price/kWh	Committed (mW)
Ground-mounted solar	4.240	4.404	1,969
Rooftop solar	4.716	4.874	9
Floating solar	4.757	5.395	90
Onshore Wind	5.982	5.848	1,512
Biomass	5.148	5.402	0
Biomass waste-to-energy	6.470	6.268	0
<b>Total Committed Capacities</b>			<b>3,581</b>

In order to ensure that the projects will be set in a more realistic timeframe and within competitive power pricing, the Energy Secretary, Mr. Raphael Lotilla, announced that they would initiate discussions with the industry stakeholders to address concerns on permit processing and transmission connection. Additionally, the DOE will also create clear-cut auction policies for GEA-4.

The third round of the GEAP, which will bid out geothermal and pumped-storage hydro capacities, was initially set in November 2023. It was rescheduled to 1Q2024, however, to allow the ERC to rework its pricing mechanism. ERC Chief Ms. Dimalanta also mentioned that they are considering to allow developers to offer their own bid prices with no set GEAR prices. Removing the Green Energy Auction Reserve (Gear) prices means ERC will have to review the proposed prices after the bidding is conducted. Such process will allow RE generators to offer at higher prices.

#### Preferential Dispatch

In October 2022<sup>35</sup>, the DOE Secretary signed Circular 2022-10-0031 granting “priority dispatch” to all generating units utilizing RE sources in the WESM. Registered generating units utilizing RE sources may now enjoy the option of preferential dispatch in the WESM – the platform for the trading of electricity. In the past, only intermittent RE sources such as wind, solar, run-of-river hydro or ocean energy were classified as “must dispatch” generating units. The Energy Secretary believes that this will help reduce the

<sup>35</sup> <https://www.doe.gov.ph/sites/default/files/pdf/issuances/dc2022-10-0031.pdf>

country's exposure to price fluctuations in the global market. Preferential dispatch will also encourage additional investments because of guaranteed dispatch which will allow recovery of investments.

#### Full Foreign Ownership of RE projects

In November 2022<sup>36</sup>, the DOE Secretary also signed Circular 2022-11-0034, amending the Section 19 of the Renewable Energy Act of 2008. The amendment allows full foreign ownership for exploration, development and utilization of solar, wind, hydro and ocean or tidal energy resources. Under the 1987 Constitution, full foreign ownership of large-scale geothermal projects is allowed through the technical or financial assistance regime. The Energy Secretary assured the public that the circular is focused only on ownership and the other processes will continue as they are.

#### Retail Aggregation Program

In June 2022, the ERC welcomed the pilot implementation of the Retail Aggregation Program through the MOA between the University of the Philippines and MERALCO. This program will allow several consumers in a contiguous area to be treated as a single contestable customer that could transact with electricity service providers, enabling them to participate and reap the same benefit enjoyed through RCOA. In addition, aggregation of the electricity requirements of end-users with a total average peak demand of at least 500 kW within contiguous area was implemented in December 26, 2022 in areas where the RCOA scheme is also operational and effective.

On December 26, 2023, the DOE also declared the implementation of the Retail Aggregation Program, RCOA, and GEOP in Mindanao.

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<sup>36</sup> <https://www.doe.gov.ph/sites/default/files/pdf/issuances/dc2022-11-0034.pdf>