

Climate Investment Fund–Accelerating Coal Transition Program

Investment Plan for the Republic of the Philippines Revision

May 2024

The projects set out in this Investment Plan are at an early conceptual stage and are subject to review and confirmation by the Asian Development Bank (ADB), International Finance Corporation (IFC) and World Bank during project preparation. The scope and financing of each project is subject to change.

The views expressed in this Investment Plan Report are those of the authors and do not necessarily reflect the views and policies of ADB, IFC, and World Bank or their Board of Governors or the governments they represent. ADB, IFC and WB do not guarantee the accuracy of the data included in this publication and accepts no responsibility for any consequence of their use. By making any designation of or reference to a particular territory or geographic area, or by using the term “country” in this document, ADB, IFC and the World Bank do not intend to make any judgments as to the legal or other status of any territory or area. If any material in the Investment Plan Report is attributed to another source, please contact the copyright owner or publisher of that source for permission to reproduce it. Neither ADB, IFC and the World Bank can be held liable for any claims that arise as a result of your use of the material.

CURRENCY EQUIVALENTS

(Exchange Rate Effective as of 30 April 2024)

Currency Unit = Philippine Peso (PHP)

\$1 = PHP 57.76

\$0.017 = PHP 1

ABBREVIATIONS AND ACRONYMS

ACT	Accelerating Coal Transition		kWh	Kilowatt-Hour
ADB	Asian Development Bank		KSTA	Knowledge And Support Technical Assistance
ASEAN	Association of Southeast Asian Nations		KIST	Knowledge Innovation Science and Technology Park
BSP	Bangko Sentral ng Pilipinas		LGUs	Local Government Units
BPI	Bank of the Philippine Islands		MW	Megawatt
BESS	Battery Energy Storage System		MSME	Micro, Small and Medium Enterprises
BOT	Build-Operate-Transfer		MMBFOE	Million Barrel of Fuel Oil Equivalent
BAU	Business-As-Usual		MMT	Million Metric Tonnes
CIF AU	CIF Administrative Unit		MDB	Multilateral Development Bank
CSO	Civil Society Organization		NCCP	National Climate Change Action Plan
CCC	Climate Change Commission		NCIP	National Commission on Indigenous Peoples
CIF	Climate Investment Fund		NEDA	National Economic and Development Authority
CHED	Commission on Higher Education		NEA	National Electrification Administration
CREZ	Competitive Renewable Energy Zones		NGCP	National Grid Corporation of the Philippines
CAGR	Compounded Annual Growth Rate		NJTA	National Just Transition Approach
DWCP	Decent Work Country Program		NPC	National Power Corporation
DepED	Department of Education		NREB	National Renewable Energy Board
DOE	Department of Energy		NREL	National Renewable Energy Laboratory
DENR	Department of Environment and Natural Resources		TransCo	National Transmission Corporation
DOF	Department of Finance		NDC	Nationally Determined Contributions
DILG	Department of Interior and Local Government		NGE	No Gender Elements
DOLE	Department of Labor and Employment		NGO	Non-Governmental Organization
DPWH	Department of Public Works and Highways		OECD	Organisation for Economic Co-operation and Development
DOST	Department of Science and Technology		PCW	Philippine Commission on Women
DSWD	Department of Social Welfare and Development		PCC	Philippine Competition Commission
DOT	Department of Tourism		PEP	Philippine Energy Plan
DTI	Department of Trade and Industry		PEISS	Philippine Environmental Impact Statement System
DOTr	Department of Transportation		PHP	Philippine Peso
DMC	Developing Member Country		PV	Photovoltaic
DPF	Development Policy Financing		PPA	Power Purchase Agreement
DCC	Directly Connected Customers		PSALM	Power Sector Assets and Liabilities Management Corporation
DU	Distribution Utility		PIOU	Private Investor-Owned Utility
EVC	Economic Value Chain		PRC	Professional Regulation Commission
EGM	Effective Gender Mainstreaming		PPP	Public-Private Partnership
EC	Electric Cooperative		RCEP	Regional Comprehensive Economic Partnership
EPIRA	Electric Power Industry Reform Act		RPS	Renewable Portfolio Standards
ETS	Emission Trading Scheme		R&D	Research and Development

ERC	Energy Regulatory Commission		RES	Retail Electricity Suppliers
ETM	Energy Transition Mechanism		RCBC	Rizal Commercial Banking Corporation
EIA	Environmental Impact Assessments		STP	Science And Technology Park
ERSP	Expanded Rooftop Solar Program		STI	Science, Technology and Innovation
GEN	Gender Equity Theme		STEAM	Science, Technology, Engineering, Arts and Mathematics
GW	Gigawatt		SMPC	Semirara Mining and Power Corporation
GWh	Gigawatt-Hour		SMEs	Small and Medium-sized Enterprises
GG	Gigagram		SGE	Some Gender Elements
GGGR	Global Gender Gap Index report		SLTEC	South Luzon Thermal Energy Corporation
GOP	Government of Philippines		SOE	State-Owned Enterprise
GEOP	Green Energy Option Program		SESA	Strategic Environmental and Social Assessment
GETP	Green Energy Tariff Program		SESMP	Strategic Environmental and Social Management Plan
GHG	Green House Gas		SDG	Sustainable Development Goal
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH		SAIDI	System Average Interruption Duration Index
GJHRD	Green Jobs Human Resource Development		SAIFI	System Average Interruption Frequency Index
GDP	Gross Domestic Product		TESDA	Technical Education and Skills Development Authority
IEMOP	Independent Electricity Market Operator of the Philippines		TVET	Technical Vocational Education and Training
IPPs	Independent Power Producers		TWh	Terawatt-Hour
IT	Information Technology		TFC	Trust Fund Committee
IRF	Integrated Results Framework		UNDP	United Nations Development Programme
ICE	Internal Combustion Engine		UNOPS	United Nations Office for Project Services
IEA	International Energy Agency		USAID	United States Agency for International Development
IFC	International Finance Corporation		\$	US Dollars
ILO	International Labour Organization		WESM	Wholesale Electricity Spot Market
IP	Investment Plan		WBG	World Bank Group
kW	Kilowatt			

Contents

1. PROPOSAL SUMMARY	10
2. COUNTRY CONTEXT – ACCELERATING COAL TO CLEAN ENERGY TRANSITION.....	16
2.1 The Philippines’ Development Record and Ongoing Challenges.....	16
2.2 Historical Role of Coal in the Electricity Sector.....	17
2.3 Electricity Security in the Philippines.....	20
2.4 Role of Renewable Energy Development in the Philippines	22
2.5 National Ambition for Decarbonization	24
2.5.1 The Philippines’ Nationally Determined Contribution.....	24
2.5.2 Philippine Energy Plan 2023–2050	25
2.6 Implementation Framework for Clean Energy Transition.....	26
2.6.1 Government Initiatives for Promoting Decarbonization of the Electricity Sector.....	26
2.6.2 Decarbonization Initiatives of the Private Sector	28
2.7 Just Transition, Gender, and Safeguards Needs across Clean Energy Transition Activities	29
3. PROGRAMS DESCRIPTION AND FINANCING PROPOSAL.....	36
3.1 The Asian Development Bank, World Bank, and International Finance Corporation Engagement with the Government of the Philippines for Climate Investment Funds-Accelerating Coal Transition Investment Plan Design and Development	36
3.2 IP Crosscutting Priorities: Supporting Just Transition, Gender, and Strategic Environmental and Social Assessment	37
3.3 Investment Plan Financing.....	40
3.4 Proposed Project Concepts	41
3.4.1 Component 1: Accelerating Voluntary Retirement and Repurposing of Coal-Fired Power Plants and Replacement of Power	41
3.4.2 Component 2: Just Transition and Governance	44
4. ADDITIONAL DEVELOPMENT ACTIVITIES.....	47
4.1 The Government’s Energy Sector Collaboration across Development Partners.....	47
5. IMPLEMENTATION POTENTIAL WITH RISK ASSESSMENT	51
6. MONITORING AND EVALUATION	56
6.1 The Philippines’ Theory of Change	56
6.2 Integrated Approach to Monitoring, Evaluation, and Learning	57
6.3 Monitoring and Reporting.....	58
APPENDICES.....	60

Appendix 1: Electricity Sector Structure in the Philippines	61
Appendix 2: Assessment of the Philippines' Capacity for Coal Transition	64
Appendix 3: Theory of Change and Integrated Results Framework	67
Appendix 4: Overview of Just Transition Activities Supporting the Climate Investment Fund– Accelerating Coal Transition Investment Plan.....	79
Appendix 5: Overview of Gender Mainstreaming and Categoriation Approaches	81
Appendix 6: The Asian Development Bank Energy Sector Support Program and Experience In Philippines.....	83
Appendix 7: The World Bank Group's Energy Sector Support Program and Experience in Philippines.....	85
Appendix 8: Project Concept – Early Retirement of Mindanao CFPP	87
Appendix 9: Project Concept – Private Sector Decarbonization and Repowering Program....	90
Appendix 10: Project Concept – Accelerating Development of Renewable Energy and Transition from Coal	94
Appendix 11: Project Concept – Supporting Research, Innovation and Skill Development for Energy Transition and Industries Transformation in the Philippines.....	97
Appendix 12: Project Concept – National Just Transition Approach Development Program	101
Appendix 13: Project Concept – Energy Transition Technical Assistance Program	105
Appendix 14: Overview of the National Strategic Environmental and Social Assessment....	108

Figures

Figure 1: Electricity Generation from Fossil Fuel and Renewable Energy (2003–2022)	17
Figure 2: Annual Net Additions to Installed Electricity Capacity (2003–2022)	18
Figure 3: Cumulative Installed Capacity Trend and Share of Renewable Energy (2003–2022)	18
Figure 4: Philippines Annual Coal Consumption (2002–2021).....	19
Figure 5: Per Capita Electricity Consumption – Philippines (2003–2022) ²²	20
Figure 6: Net Dependable Capacity vs. Peak Demand – Philippines (2003–2022).....	21
Figure 7: National Reliability Indicators (Not Disaggregated) (2020)	21
Figure 8: Installed Capacity (2022).....	22
Figure 9: Renewable Energy and Coal Capacity (2022 vs. 2030, 2040 and 2050 Target)	23
Figure 10: Reference Scenario (Business-as-Usual) vs. Clean Energy Scenarios – Philippine Energy Plan 2023–2050.....	25
Figure 11: Just Transition Framework	38
Figure 12: Electricity Sector Structure in the Philippines (excluding off-grid)	61
Figure 13: Coal-to-Clean Transition Strategy	64
Figure 14: Retirement Profile – Base Case vs. Accelerated Retirement Case.....	65
Figure 15: Carbon Dioxide Emissions per Kilowatt-Hour – Base Case vs. Accelerated Retirement Case	66
Figure 16: Cumulative Carbon Dioxide Emissions – Base Case vs. Accelerated Retirement Case ...	66
Figure 17: Philippines – Theory of Change	67
Figure 18: Ongoing Engagements on Just Transition in the Philippines	79

Box

Box 1 : Repurposing of CFPPs	44
------------------------------------	----

Tables

Table 1: Indicative Financing Plan (\$ million)	12
Table 2: Climate Disaster Statistics for the Philippines (1989-2018).....	16
Table 3: Potential Renewable Energy Generation Capacities Identified by the Competitive Renewable Energy Zones Process.....	24
Table 4: Indicative Financing Plan (\$ million)	40
Table 5: Summary of Development Activities (2013 onward)	47
Table 6: Implementation Potential and Risk Summary	51
Table 7: Initial Gender Categorization for Proposed ADB Projects under the Climate Investment Fund–Accelerating Coal Transition Investment Plan	81
Table 8: Initial Gender Categorization for Proposed WBG Projects under the Climate Investment Fund–Accelerating Coal Transition Investment Plan	82
Table 9: Results Indicators*	88
Table 10: Financing Plan	89
Table 11: Program Preparation Timetable.....	89
Table 12: Results Indicators*	92
Table 13: Financing Plan	92
Table 14: Program Preparation Timetable.....	92
Table 15: Results Indicators*	95
Table 16: Financing Plan	96
Table 17: Program Preparation Timetable.....	96
Table 18: Results Indicators.....	99
Table 19: Financing Plan	100
Table 20: Program Preparation Timetable.....	100
Table 21: Results Indicators.....	102
Table 22: Financing Plan ^a	103
Table 23: Program Preparation Timetable.....	104
Table 24: Results Indicators*	106
Table 25: Financing Plan	107
Table 26: Program Preparation Timetable.....	107
Table 27: Government Agencies with Mandates and Responsibilities on Environment and Social Safeguards	133
Table 28: List of Stakeholders.....	136

1. PROPOSAL SUMMARY

1. **Accelerating Coal Transition Program objectives.** In March 2021, the Climate Investment Funds (CIF) established the Accelerating Coal Transition (ACT) program to support developing countries that rely heavily on coal. The program aims to accelerate the transition away from coal to renewable energy (RE) while ensuring a holistic, integrated, socially inclusive, and gender-equal transition. The ACT program is structured around three pillars of governance, people and communities, and infrastructure. In October 2021, the Philippines, along with three other countries—India, Indonesia, and South Africa, was selected as an ACT pilot country and invited to develop its ACT Investment Plan (IP).¹ This IP, developed by the Government of Philippines (GOP) in collaboration with the Asian Development Bank (ADB), International Finance Corporation (IFC) and the World Bank, is a business plan that identifies potential areas for ADB, IFC, and the World Bank investment and support to initiate the accelerated voluntary retirement and repurposing of coal-fired power plants (CFPPs), mitigate the impacts of the transition for people and communities, and enable the financing of clean energy power generation alternatives. The IP is designed to proactively address associated challenges linked to the energy transition as it applies to national strategies, people and communities, and land and infrastructure.

2. **Power security and reliability are critical for the Philippines, especially as power demand is expected to grow over the long-term.** According to the Philippine Energy Plan (PEP) 2023–2050, electricity consumption is projected to rise at a compound annual growth rate (CAGR) of 5.4%–5.5% from 2022 to 2050. Total peak demand is expected to increase over three times its 2022 level of 16.6 gigawatts (GW) to 68.5 GW by 2050 corresponding to a CAGR of 5.2%.² However, the generation reserve has been declining over the years due to the inability of the supply to keep up with the growing demand. As such, the Philippines' grid reliability slightly lags that of its regional counterparts. As a result, the country witnessed several power outages in 2022, emphasizing the urgent need for reliable and sufficient energy supply in the Philippines.

3. **Coal has been the mainstay of the Philippines' power supply, serving as a viable baseload option, but this has led to a rise in carbon dioxide and greenhouse gas emissions.** Coal accounts for 44% of the total installed generation capacity and 60% of the total generation in 2022.³ As a result, annual carbon dioxide (CO₂) emission of the Philippines has risen at a CAGR of 3.4%, going from 65 million tons of CO₂ in 2000 to 136 million tons in 2022. In 2022, coal accounted for 55.4% of the country's total emissions by fuel type.⁴

4. **The Government of the Philippines' ambitious decarbonization plan.** For its enhanced nationally determined contribution (NDC) under the Paris Agreement, the Philippines has committed to a 75% reduction in greenhouse gas (GHG) emissions over 2020–2030 compared to business-as-usual (BAU) scenarios, of which 2.71% is unconditional and 72.29% is conditional.⁵ In October 2020, the Department of Energy (DOE) issued a moratorium of endorsements for greenfield CFPPs. Simultaneously, the GOP implemented various initiatives for the development of RE in the country. In November 2022, the GOP allowed full foreign ownership in the renewable sector. In 2022, DOE raised the Renewable Portfolio Standards (RPS), which

¹ Subsequently, the Dominican Republic and North Macedonia were also added to the list of ACT Pilot countries. [Accelerating Coal Transition Investment Program | Climate Investment Funds \(cif.org\)](https://www.cif.org/accelerating-coal-transition-investment-program)

² DOE. PEP 2023–2050.

³ DOE. Philippines Power Statistics. [Philippine Power Statistic | Department of Energy Philippines \(doe.gov.ph\)](https://www.doe.gov.ph/philippine-power-statistics)

⁴ DOE and Our World in Data. <https://ourworldindata.org/>

⁵ <https://unfccc.int/sites/default/files/NDC/2022-06/Philippines%20-%20NDC.pdf>

requires electricity suppliers to source an agreed portion of their supply from eligible RE facilities, from 1% to 2.52% annually starting 2023 for on-grid areas. Renewable Energy Market (REM) was introduced in 2022, which establishes the market for the trading of RE Certificates between and among trade participants. In 2021, DOE introduced the Green Energy Auction Program (GEAP). The program provides a framework to facilitate immediate and timely investment for new and additional RE capacities. This will help ensure the provision of adequate supply under a competitive process. The Green Energy Option Program (GEOP) was also introduced and provides end-users the option to choose RE resources as their source of energy.

5. Given the privatized and commercially oriented power sector in the Philippines, the coal-to-clean energy transition needs to be led by the private sector. Because of unbundling efforts of the GOP, the power sector in the Philippines is largely privatized. Private independent power producers (IPPs) account for close to 90% of the total power generation in the Philippines. The CFPPs in the Philippines are predominantly owned by private sector entities, except for Mindanao CFPP, which is under a build-operate-transfer (BOT) concession until 2031, after which ownership of the plant will be transferred to the GOP. These privately owned IPPs often operate with power purchase agreements (PPAs) ensuring fixed return to sponsors and avoid “stranding” pressure. CFPPs scheduled for decommissioning or those voluntarily retired can be replaced by RE, which can contribute to the reduction of emissions. Without financial incentives, no amount of political will would be sufficient to accelerate the voluntary CFPP retirements and repurposing and initiate the transformational change required for the transition from coal to clean energy. As regards captive coal plants, there are 3 plants amounting to 209 MW, which is less than 2% of the total coal installed capacity of 12,473 MW.⁶ There are no new captive CFPPs under construction or planned.

6. Accelerating Coal Transition Investment Financing Plan. With \$500 million in CIF–ACT funding leveraging \$1,496 million in multilateral development bank (MDB) cofinancing and \$860 million in other cofinancing (Table 1), this IP proposes a project pipeline of investments that will pilot the implementation of the Philippines’ accelerated coal to clean energy transition. The program design considers just transition issues along the entire value chain, including enabling activities that can support workers to capitalize on energy transition and other economic diversification opportunities. The IP is designed to align to ACT priorities with approximately 5% of the financing dedicated to governance, 23% to people and communities and 72% to infrastructure.

⁶ Based on the DOE’s data on “embedded generator” which refers to generating units that are indirectly connected to the grid through the distribution system that supplies power to its host distribution utility or the grid.

Table 1: Indicative Financing Plan (\$ million)

#	Component	MDB Sector	ACT	MDB	Other / Private	GoP	TOTAL	Pillars		
								Governance	People & Communities	Infrastructure
Component 1: Accelerating Retirement / Repurposing of CFPPs and Replacement of Power										
1.1	Early Retirement of Mindanao CFPP	ADB (Private / Public ^a)	95 and 1 (grant) ^b	95	285		475 and 1 (grant)		✓	✓
1.2	Private Sector Decarbonization and Repowering Program	ADB (Private / Public ^a)	120 and 2 (grant) ^b	240	240		600 and 2 (grant)		✓	✓
1.3	Accelerating Development of Renewable Energy and Transition from Coal	IFC (Private)	140 and 5 (grant)	280	280		700 and 5 (grant)		✓	✓
Component 2: Just Transition and Governance										
2.1	Project PRISTINE	ADB (Public)	120 and 5 (grant)	280		50	450 and 5 (grant)	✓	✓	✓
2.2	National Just Transition Approach Development Program	ADB (Public)	2 (grant)	1 (grant)			3 (grant)	✓	✓	
2.3	Energy Transition Technical Assistance	World Bank (Public)	10 (grant)	600		5	605 and 10 (grant)	✓	✓	
TOTAL			475 and 25 (grant)	1,496	805	55	2, 830 and 26 (grant)	23 (5%)	115 (23%)	362 (72%)

ACT = Accelerating Coal Transition, ADB = Asian Development Bank, CFPP = coal-fired power plant, GoP = Government of the Philippines, IFC = International Finance Corporation, MDB = multilateral development bank.

Notes:

a. ADB (Public) is likely to manage the grant funding received for the project.

b. Grant funding will be primarily utilized for just transition-related activities.

Source: ADB, IFC and World Bank.

7. **Project concepts are designed to provide holistic support for coal to clean energy transition.** Projects under Component 1 have been designed to expedite the voluntary retirement and/or repurposing of eligible CFPPs. Concessional climate finance will be utilized to help project operators absorb the financial impact of ending revenue streams early and repurpose their resources or develop new assets for replacement of lost power supply to ensure smooth transition to cleaner energy sources while maintaining power security and reliability. Grant components are integrated in the design of Component 1 projects to support asset-level just transition assessments, which would identify intervention needs and entry points for just transition planning and implementation. The asset-level just transition activities under Component 1 projects will be implemented alongside and will complement the programmatic just transition activities under Component 2. Participation of key stakeholders in the just transition process, across asset, subnational, and national levels, in an iterative manner is an integral part of the IP's just transition framework (see [Figure 11](#)), and would include workers, local communities, vulnerable and marginalized groups, civil society, and local, provincial and national government units.

8. Component 2 projects are more programmatic in approach (i.e., not focusing on specific assets but can use some as proof of concept) and are designed to support the GOP in its country-driven just energy transition through developing a national just transition framework, strengthening technical and institutional capacity for development and implementation of national energy transition actions, enhancing reskilling and upskilling programs focused on clean and efficient use of energy, and ensuring continued basic service delivery to affected communities as well as access to diversified livelihood opportunities and economic development.

9. **Investment Plan target outcomes.** In summary, the IP aims to achieve the following outputs and outcomes:

- a. **Governance.** The adoption or amendment of up to 7 strategies, policies, regulations, standards, or codes.⁷
- b. **People.** Up to 374 (i.e., 80% of) employees of CFPPs retired through IP projects with access to sustained income and up to 468 direct beneficiaries of social plans and economic regeneration activities, to be disaggregated by gender, and reflecting other social characteristics (age, disability status, formal vs. informal workers etc.) as well as documented information about the quality of the jobs (income, skilled/ non-skilled positions) whenever relevant and possible.⁸
- c. **Infrastructure.** Avoided greenhouse gas emissions of up to 33 million tons carbon dioxide equivalent (CO₂e) through the accelerated voluntary retirement of up to 900 megawatts (MW) of CFPP generation capacity, as well as up to 25 million tons of coal diversion and an increase of up to 1,500 MW of installed renewable energy capacity.⁹

10. **Multilateral development bank and development partner coordination mechanisms across projects and crosscutting priorities.** ADB, IFC, and WB will be leading and contributing to the following coordination mechanisms to ensure harmonized approaches and investment results:

- a. **Coal-fired power plants.** MDBs will coordinate on CFPPs to be voluntarily retired through IP investments, where the same CFPPs are targeted for retirement, repurposing, repowering, and just transition support (subject to each MDB's own due diligence and limitations on the choice of instruments). As part of feasibility study for Energy Transition Mechanism (ETM)¹⁰ for the Philippines, ADB conducted a modeling scenario analysis on an illustrative basis to evaluate the impact of adopting coal-to-clean energy transition strategy in the country. In addition, ADB is discussing and collaborating with the Power Sector Assets and Liabilities Management Corporation (PSALM) and other private sector developers for supporting energy transition for the Mindanao CFPP and other privately owned CFPPs.
- b. **Safeguards.** The MDBs and development partners are coordinating closely to ensure environmental and social considerations are integrated in the accelerated retirement of coal, deployment of renewables—and as part of the just transition strategy. ADB has initiated strategic environmental and social assessment (SESA) for the Philippines' energy transition program, which will provide opportunities for government and nongovernment stakeholders to identify key safeguards considerations and will facilitate coordination and consultation. ADB is supporting the GOP, through the spearheading role of the Department of Environment and Natural Resources (DENR) in developing the environmental and social regulatory framework for offshore wind and floating solar with complementary support from United States (US) State Department and the United Kingdom and Norwegian embassies, contributing to marine spatial planning for offshore

⁷ Tracked by ACT Core Indicators 1 and 2.

⁸ Tracked by ACT Core Indicators 3 and 4.

⁹ Tracked by ACT Core Indicators 5, 6, 7, 8, 9 and 11.

¹⁰ The ETM is an ADB program that utilizes concessional and commercial capital from various public and private sources to incentivize the early retirement or repurposing of coal-fired power plants and other carbon-intensive power generation while also unleashing new investments in clean energy, grids, and energy storage.

wind being led by the Carbon Trust and Energy Transition Partnership and coordinating parallel technical assistance of other development partners and aligning deliverables in the subsector. In the preparation and implementation of all projects under this investment plan, the MDBs will apply their respective institutional safeguards policies, which include identification, impact assessment, and meaningful consultation with project-affected people and communities, and engagement with other stakeholders as relevant.

- c. **Just transition.** MDBs are working together on just transition issues at the global, regional, and national levels. An MDB Just Transition Working Group was convened under the Joint MDB Paris Alignment Framework to discuss technical and operational approaches to just transition, share lessons, and support harmonized approaches. For the Philippines, the MDBs are closely coordinating just transition activities to ensure targeted support. ADB and the World Bank are jointly engaging with the government to support the development of a national approach to just transition. This builds on the results of upstream analytical work undertaken by MDBs. The World Bank undertook a preliminary scoping study to identify and gain a more detailed understanding of the key issues at play for a just transition in the Philippine context that might require additional analysis. ADB is undertaking preliminary analysis of just transition issues as part of the feasibility study for the ETM. The findings and recommendations from this work is informing the joint scoping and engagement with government on future just transition support. Given the presence of the private sector in the energy sector, MDBs will also consult with private sector stakeholders on just transition support needs and a national approach. The MDBs will also coordinate with other development partners actively working on just transition and the green jobs agenda in the Philippines including the United Nations Development Programme (UNDP), the International Labour Organization (ILO) and Energy Transition Partnership,¹¹ and have discussed multi-stakeholder consultations and approaches with government to ensure harmonization and reduce duplication.
- d. **Gender.** MDBs envisage establishing a coordination mechanism to align their support to government in mainstreaming gender in the country's gender-just energy transition agenda, including through the proposed investments. While for the proposed investments ADB, IFC, and the World Bank will adhere to their corporate gender mainstreaming requirements and targets, they will also coordinate and collaborate with the CIF Gender and Just Transition team as well as other stakeholders to share knowledge and exchange experience. Without adequate understanding and buy-in from different stakeholders, including women's groups and grassroots, at the outset, engaging women in coal transition processes will be challenging. ADB tapped into the Women-Led Coal Transition Mechanism (WOLCOT) mechanism aiming to raise the ambitions on integrating gender transformative approaches for the ADB projects focusing on coal transitions. It is expected that findings of the preparatory activities funded through WOLCOT grant will also help building capacity of women's organizations to contribute to policy dialogue on energy transition as relevant.

11. Through the IP, the GOP, ADB, IFC, and the World Bank will collaborate to lay a strong foundation for sustainable change, by (i) phasing out CFPPs and paving the way for accelerated deployment of RE by the private sector; (ii) promoting realization of environmental and socioeconomic co-benefits for sustainable development; (iii) crowding-in capital; and (iv) enabling

¹¹ [Energy Transition Partnership](#).

more integrated, innovative approaches for a greener, more inclusive and affordable and gender-equal energy transition.

2. COUNTRY CONTEXT – ACCELERATING COAL TO CLEAN ENERGY TRANSITION

2.1 The Philippines' Development Record and Ongoing Challenges

12. The Philippines is the 13th most populous country in the world and third largest economy in the Association of Southeast Asian Nations (ASEAN) region (after Indonesia and Thailand). It is also one of the fastest-growing emerging markets in the world. Over the past 2 decades, the country has witnessed steady economic growth, averaging 5.5% from 2000 to 2019. While in 2020, the gross domestic product (GDP) contracted by 9.5% on year-on-year basis due to the impact of the coronavirus disease (COVID-19) pandemic, it has witnessed a strong growth of 5.7% and 7.6% in 2021 and 2022 respectively, driven by investment and rebound in domestic demand due to easing of COVID-19 mobility restrictions in the country.¹²

13. Despite the country's economic achievements, the path to becoming a more advanced economy is long. GDP per capita for 2022, adjusted for purchasing power parity, remains 51% lower than the world average highlighting the need for further development.¹² Although the Gini coefficient for the Philippines has decreased from 46.6 in 2003 to 40.7 in 2021, indicating advancements in delivering inclusive growth, it remains much higher than Gini coefficients for regional peers such as India (35.7 in 2019), Indonesia (37.9 in 2022), and Thailand (35.1 in 2021), underscoring the income inequality that still persists in the country.¹³ Additionally, economic development remains regionally imbalanced. Although the archipelago comprises of over 7,000 islands, economic activity is concentrated primarily in the national capital and the two adjacent regions, Central Luzon and CALABARZON. These three regions (out of a total of 17) collectively contributed 56.3% of the Philippines' total GDP in 2022.¹⁴

14. Another crucial aspect influencing the Philippines' development prospects is its susceptibility to climate change impacts. The country ranks as the fourth most vulnerable nation globally, facing the consequences of rising sea levels, increased extreme weather events, soaring temperatures, and extreme rainfall.¹⁵ It has witnessed several climate disasters in the past 30 years including droughts, floods, and storms (Table 2).

Table 2: Climate Disaster Statistics for the Philippines (1989-2018)

Disaster Type	Events Count	Total Deaths	Total Affected People (million)	Damage (\$ million)
Drought	5	8	3	149
Flood	124	2,313	29	3,536
Storm	218	29,697	139	232

Source: Climate Analytics report. 2019. Country Profile Philippines - Decarbonising South and South East Asia.

15. The economic impacts of climate change in the Philippines are highly uncertain but are expected to be substantial and are increasing. According to a report by the World Bank, the Philippines' GDP in 2030 is expected to be at least 3.2%–3.7% lower than it would have been if climate change ended today (depending on sensitivity to typhoons), with the cost rising to 5.7%–

¹² World Bank. <https://data.worldbank.org/>

¹³ World Bank. [Gini index - Philippines | Data \(worldbank.org\)](https://data.worldbank.org/indicators/SH.UV.CDVS?locations=PH)

¹⁴ Philippine Statistics Authority. <https://psa.gov.ph/grdp/data-series>

¹⁵ Greenwatch Index. <https://www.germanwatch.org/en/19777>

7.5% of GDP by 2040. However, the impacts could be much worse, depending on typhoon outcomes, potentially reaching 7.6% of GDP by 2030 and 13.6% of GDP by 2040.¹⁶ Climate change is expected to disproportionately affect the lower income population as they have lower coping capacity, tend to live in cheaper and riskier areas, have fewer safety nets, and often depend on disaster vulnerable livelihoods such as agriculture and fishing.

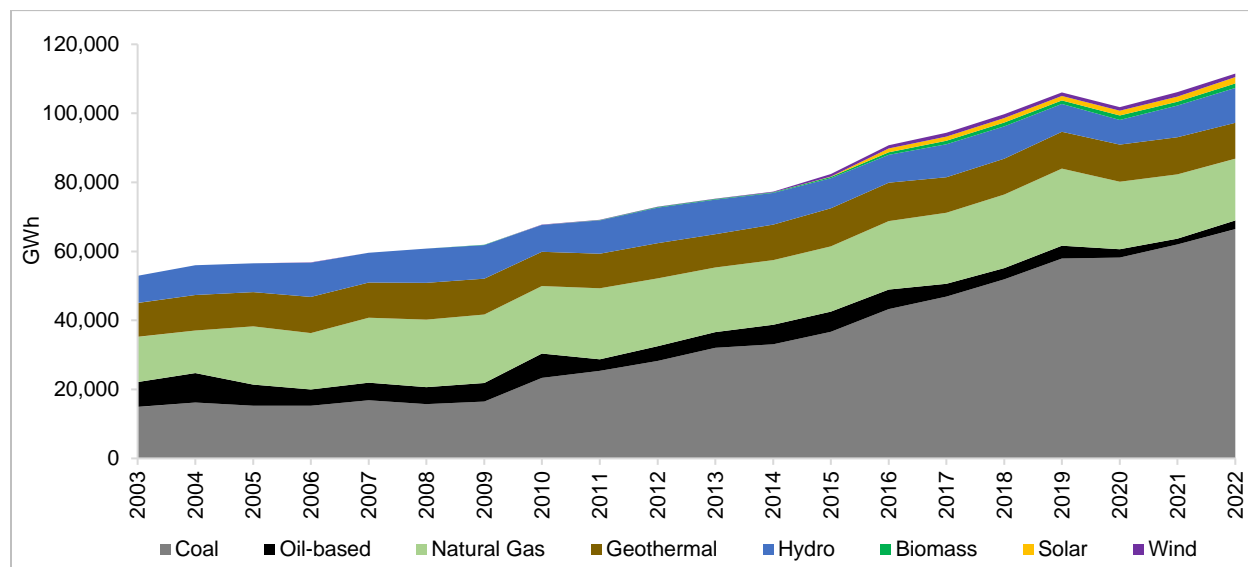
16. Energy security is one of the main drivers of government energy policies in the Philippines. The country, which is reliant on imported fossil fuels, is vulnerable to uncertainties in the international energy market. Its power generation depends on coal from overseas and will soon depend on imported LNG. Reducing fossil fuel dependency and transitioning to renewable energy closely aligns with national energy security needs.

17. Given the Philippines’ vulnerability to climate change and its energy security concerns, there is an urgent need for an energy transition. Focusing on sustainable and climate-resilient energy solutions can play a crucial role in mitigating the adverse effects of climate change and fostering inclusive growth in the Philippines.

2.2 Historical Role of Coal in the Electricity Sector

18. **Reliance on coal in electricity generation.** The Philippines’ continuous economic growth has entailed high demand for electricity, which has been met by prioritizing baseload plants with steady, non-stop output, i.e., fossil fuel-based generation. Hence, the share of fossil fuel in the total electricity generation has increased from 67% in 2003 to 78% in 2022. This is largely driven by rising share of coal, which has increased from 28% of total generation in 2003 to 60% in 2022. Natural gas and oil’s share in generation mix has decreased from 25% and 14% respectively in 2003 to 16% and 2% respectively in 2022. During 2003–2022, generation from coal grew by a CAGR of 6.5%, while generation from renewables grew by CAGR of only 1.2%.¹⁷

Figure 1: Electricity Generation from Fossil Fuel and Renewable Energy (2003–2022)



¹⁶ World Bank Group. 2022. *Philippines Country Climate and Development Report*. CCDR Series. Washington, DC: World Bank. <http://hdl.handle.net/10986/38280> License: CC BY-NC-ND.

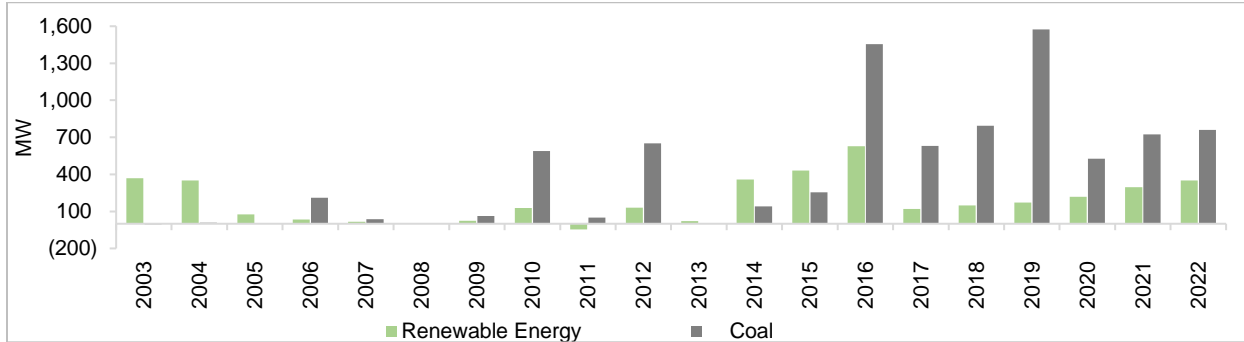
¹⁷ Department of Energy. Philippine Power Statistics. [Philippine Power Statistic | Department of Energy Philippines \(doe.gov.ph\)](http://www.doe.gov.ph).

GWh = gigawatt-hour.

Source: Department of Energy. Philippine Power Statistics. [Philippine Power Statistic | Department of Energy Philippines \(doe.gov.ph\)](http://www.doe.gov.ph).

19. From 2012 to 2022, the country added 7,511 MW of installed capacity for coal, while the number for RE stands at 2,873 MW for the same period. As a result, by 2022, the share of installed electricity capacity by fossil fuels reached 71% of total capacity with coal contributing close to 44%.¹⁸

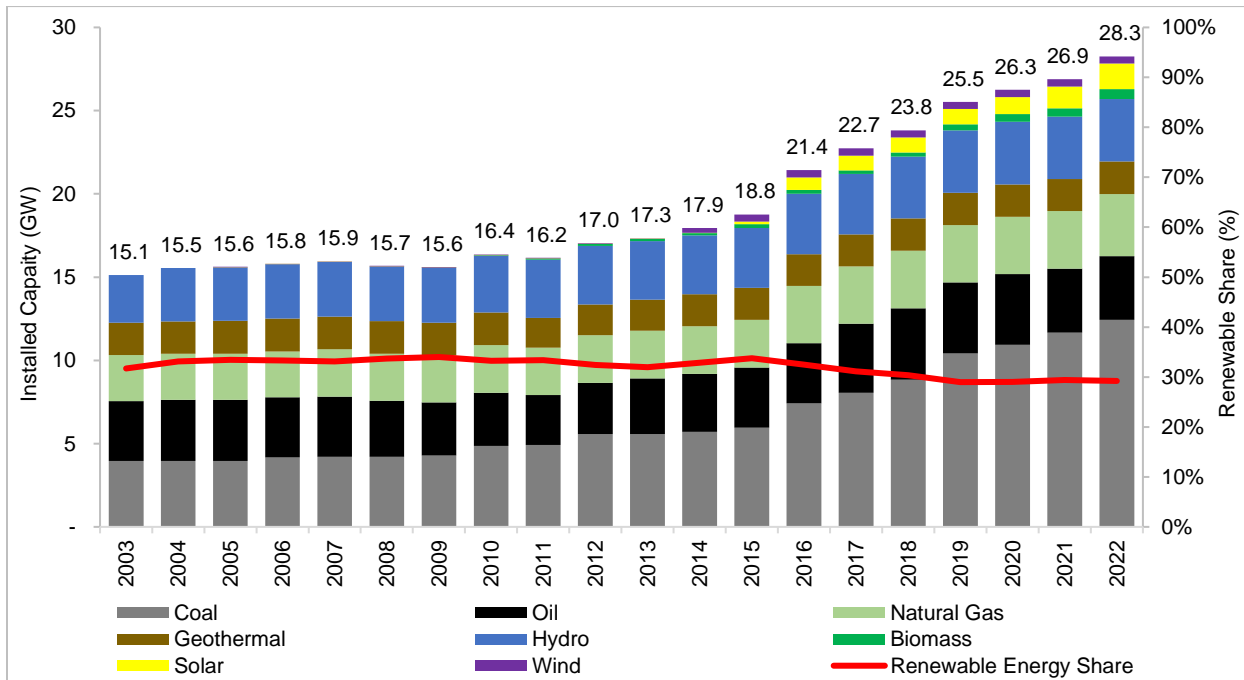
Figure 2: Annual Net Additions to Installed Electricity Capacity (2003–2022)



MW = megawatt.

Source: Department of Energy. Philippine Power Statistics. [Philippine Power Statistic | Department of Energy Philippines \(doe.gov.ph\)](http://www.doe.gov.ph).

Figure 3: Cumulative Installed Capacity Trend and Share of Renewable Energy (2003–2022)



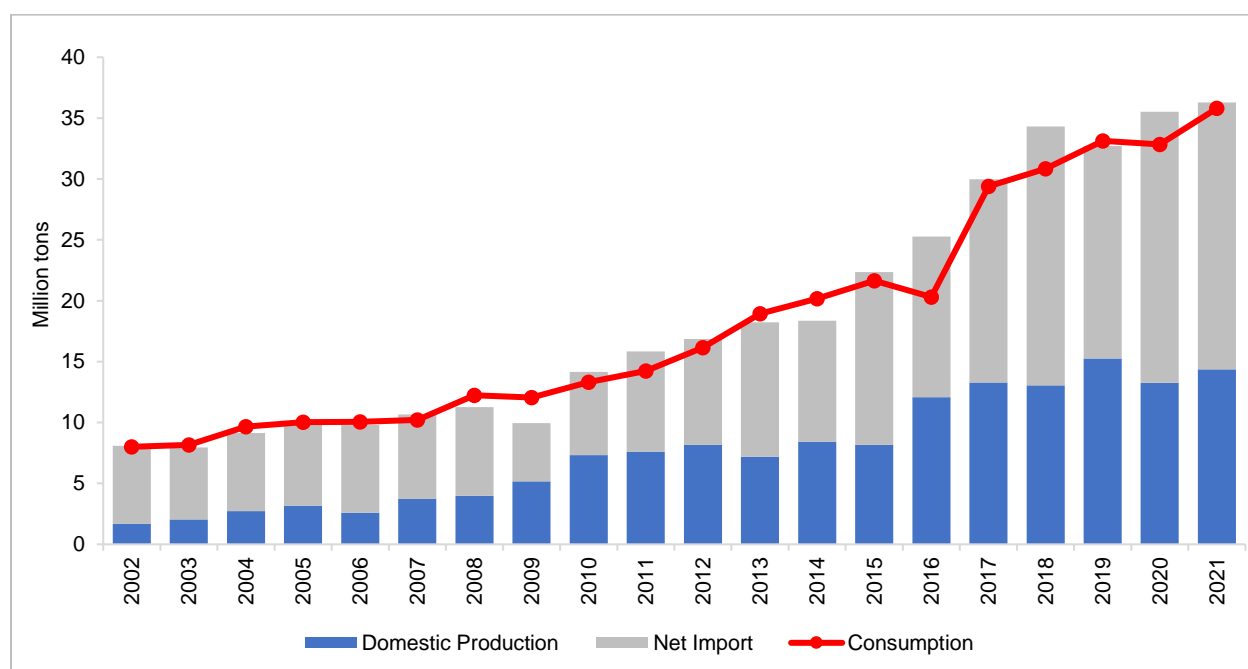
GW = gigawatt.

¹⁸ Department of Energy. Philippine Power Statistics. [Philippine Power Statistic | Department of Energy Philippines \(doe.gov.ph\)](http://www.doe.gov.ph).

Source: Department of Energy. Philippine Power Statistics. [Philippine Power Statistic | Department of Energy Philippines \(doe.gov.ph\)](#).

20. **Coal consumption in the Philippines.** The Philippines is largely a coal-consuming country, with majority of its coal demand arising from electricity generation. Coal consumption stood at 8 million metric tons (MMT) in 2002. During 2002–2021, coal consumption increased at a CAGR of 8.3%, reaching 35.8 MMT in 2021. Despite having coal reserves of close to 315 MMT (with coal resource potential of up to 2,370 MMT), domestic coal production was not able to keep pace with the increasing demand. Further development of the infrastructure and mine facilities remains difficult as coal reserves are scattered over many islands. Domestic coal production has been concentrated in the Semirara Island in Luzon (situated in the south of the Mindoro island), which produced 99% of the country’s coal in 2021. This heavy reliance on coal, coupled with low domestic production, has led to a consistent increase in the amount of coal imported by the Philippines.¹⁹

Figure 4: Philippines Annual Coal Consumption (2002–2021)



Source: Department of Energy. Coal Statistics. [Coal | Department of Energy Philippines \(doe.gov.ph\)](#).

21. **Increasing reliance on coal driving the Philippines’ carbon dioxide and greenhouse gas emissions.** With increased economic development, the annual CO₂ emission of the Philippines have risen at a CAGR of 3.4%, going from 65 million tons of CO₂ in 2000 to 136 million tons in 2022. Still, the per capita annual CO₂ emission of the Philippines is only 27% of the global as well as Asian average. The electricity and heat sector accounts for approximately 49% of the total annual CO₂ emission of the Philippines in 2019 driven by high share of fossil fuels in electricity generation.²⁰ Additionally, coal accounted for 55.4% of the country’s total emissions by fuel type in 2022.²¹

¹⁹ DOE. Coal Statistics. [Coal | Department of Energy Philippines \(doe.gov.ph\)](#)

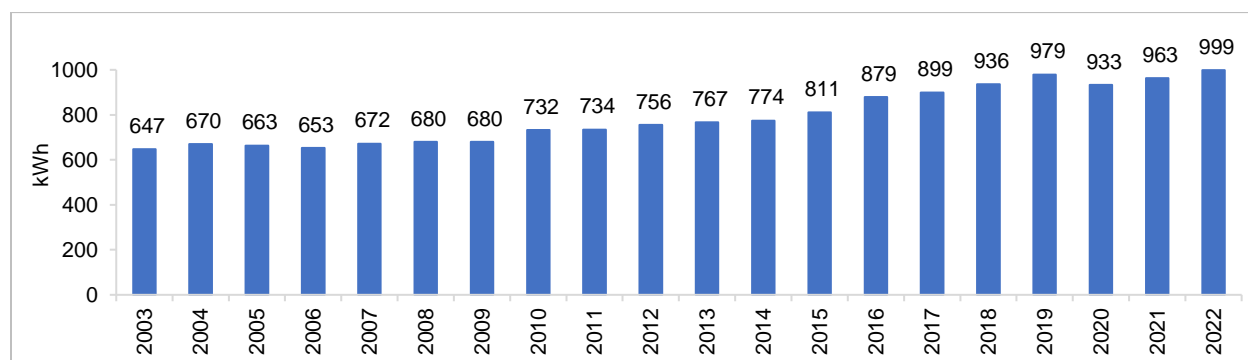
²⁰ Our World in Data. <https://ourworldindata.org/>

²¹ DOE.

2.3 Electricity Security in the Philippines

22. **Electricity demand growth.** Electricity consumption per capita has steadily increased over the past 2 decades with 2020 being the only exception when it fell due to COVID-19 related mobility restrictions. The Philippines' power consumption of 979 kilowatt-hours (kWh) per capita in 2019, and even 999 kWh per capita in 2022²² remains well below the International Energy Agency (IEA) 2019 benchmarks of 3,265 kWh per capita for the world and 1,142 kWh per capita for non-Organisation for Economic Co-operation and Development (OECD) Asia,²³ highlighting the growth potential of electricity demand in the Philippines. As per PEP 2023–2050, electricity consumption is expected to grow by an CAGR of 5.4%–5.5% from 2022 to 2050 to reach 403.5–408.1 TWh in 2050.²⁴

Figure 5: Per Capita Electricity Consumption – Philippines (2003–2022)²²



KWh = kilowatt-hour.

Source: Our World in Data. <https://ourworldindata.org/>.

23. **Low generation reserves and electricity energy deficit.** The peak electricity demand has been steadily increasing at a CAGR of 3.7% during 2003–2022, reaching 16.6 GW in 2022. According to the PEP 2023–2050, this upward trend is expected to continue strongly until 2050, with a projected CAGR of 5.2%. Peak demand is estimated to reach 25.4 GW by 2030, 42.8 GW by 2040, and 68.5 GW by 2050.²⁵ The generation reserve has been reducing over the years due to the inability of the supply to keep up with the growing demand. Additionally, the Philippines' grid reliability still slightly lags that of its regional counterparts. As a result, the country has witnessed several power outages. In 2022, there were 10 instances when generation capacity was not enough to meet the reserve requirements, and in 3 instances, the supply fell so low that it led to rotating power interruptions. The Wholesale Electricity Spot Market (WESM) prices surged to 16.4 cents per kWh in June 2022, which is nearly double the five-year average of 8.3 cents per kWh due to the supply's inability to match the increasing demand. These power outages and surge in electricity prices underscore the urgent need for reliable and sufficient energy supply in the Philippines.

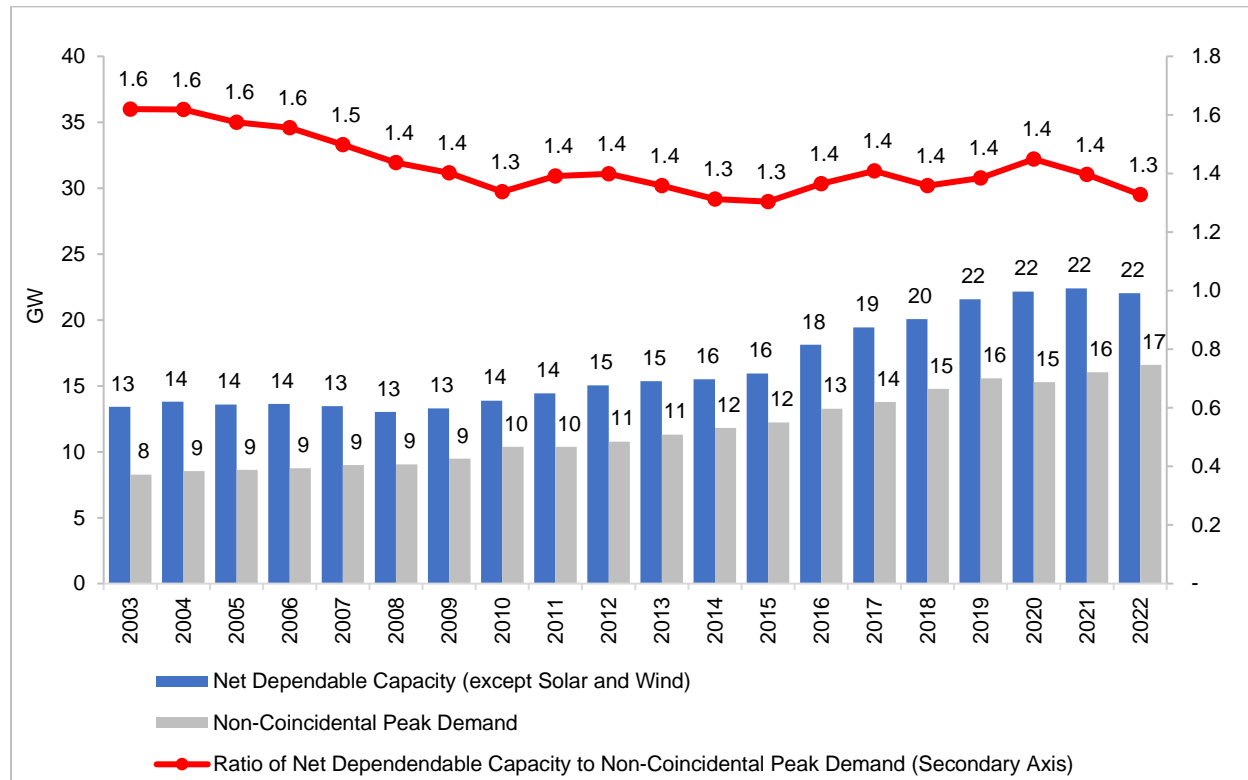
²² DOE. Philippines Power Statistics. [Philippine Power Statistic | Department of Energy Philippines \(doe.gov.ph\)](https://www.doe.gov.ph/philippine-power-statistics)

²³ IEA. 2021. *Key World Energy Statistics 2021*. Paris: IEA. <https://www.iea.org/reports/key-world-energy-statistics-2021>, License: CC BY 4.0.

²⁴ DOE. PEP 2023–2050.

²⁵ DOE, PEP 2023–2050.

Figure 6: Net Dependable Capacity vs. Peak Demand – Philippines (2003–2022)

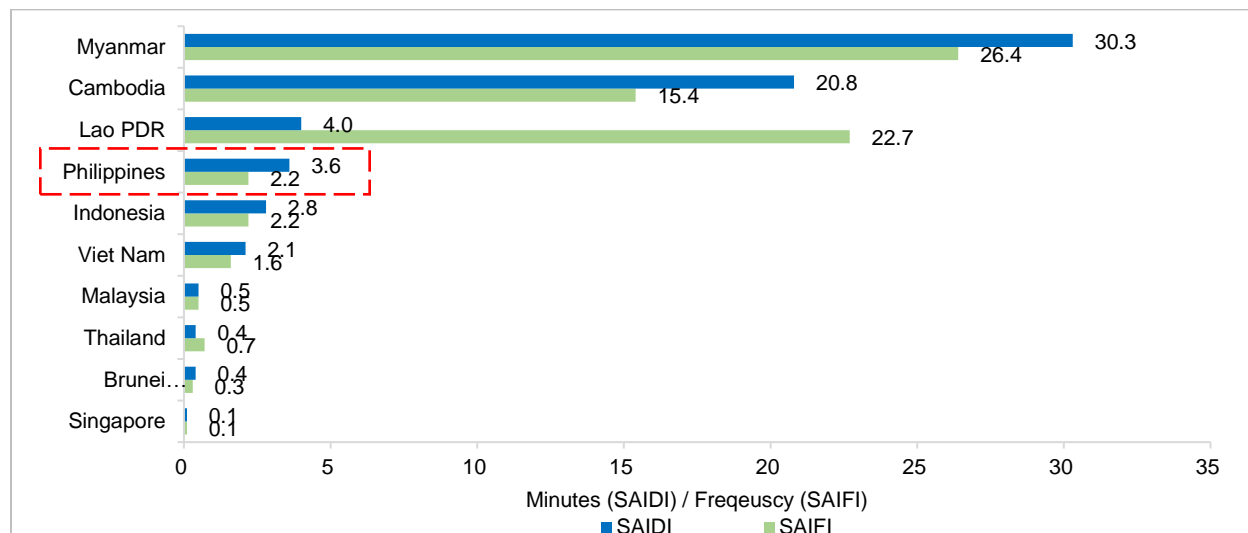


GW = gigawatt.

Source: Department of Energy. Coal Statistics. [Coal | Department of Energy Philippines \(doe.gov.ph\)](https://doe.gov.ph/coal).

Net dependable capacity included for coal, natural gas, oil, hydro, geothermal, and biomass.

Figure 7: National Reliability Indicators (Not Disaggregated) (2020)



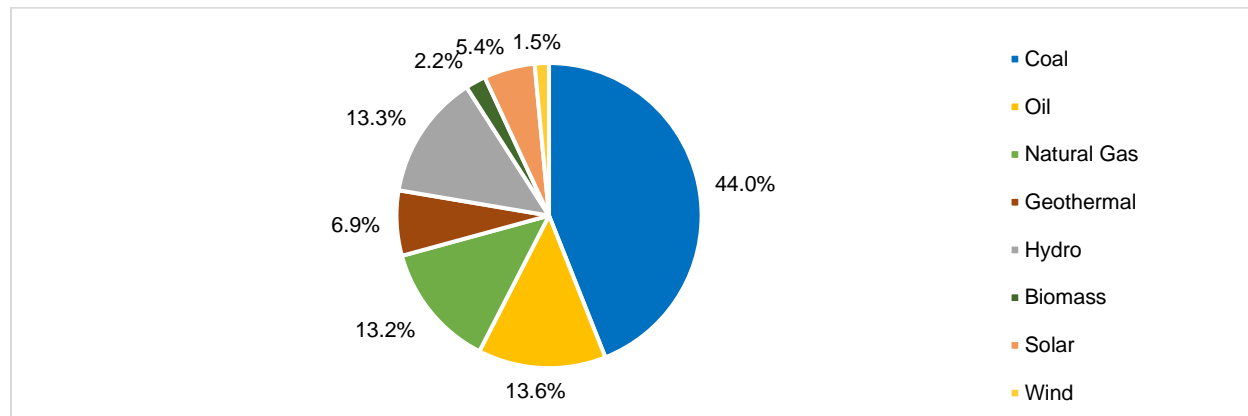
Lao PDR = Lao People's Democratic Republic.

Source: World Bank, Department of Energy, National Grid Corporation of the Philippines, TLG analysis.

2.4 Role of Renewable Energy Development in the Philippines

24. **Renewable energy status.** As of the end of 2022, the total RE capacity stood at only 8.3 GW accounting for 29% of the total installed capacity. Geothermal and hydro together accounted for about three-fourths of the installed capacity for RE.²⁶

Figure 8: Installed Capacity (2022)



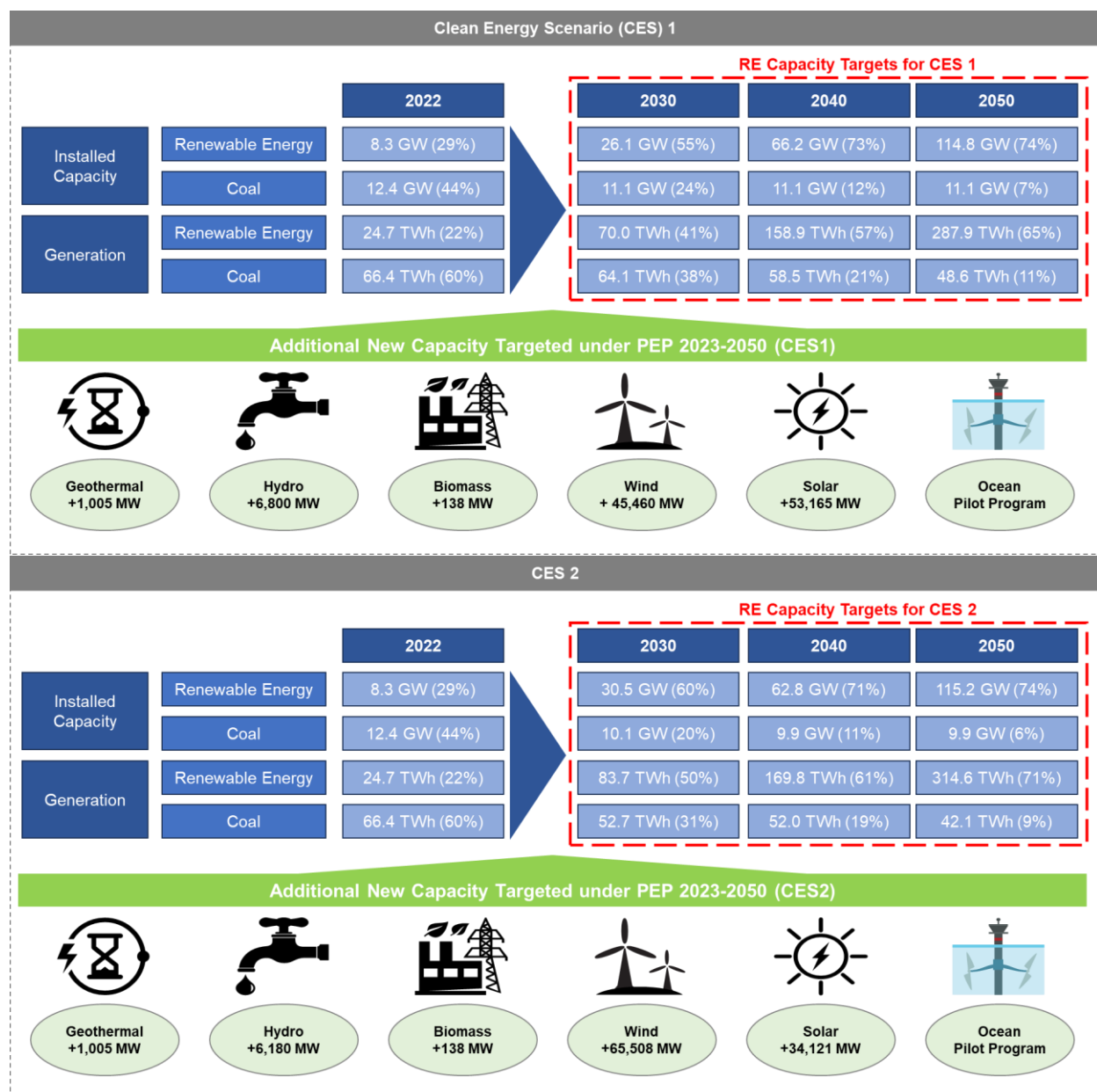
Source: Department of Energy. Coal Statistics. [Coal | Department of Energy Philippines \(doe.gov.ph\)](https://doe.gov.ph/coal).

25. **Renewable energy target.** The GOP, in its PEP 2023–2050, has set an ambitious target to reach the share of RE to at least 35% of the electricity generation mix by 2030 and 50% by 2040 in its reference scenario. With key policies and programs already in place, the GOP aspires to further increase the RE share to 35% by 2030, 50% by 2040, and more than 50% by 2050.²⁷ In addition to existing RE technologies, the Philippines will explore the potential and viability of new and alternative cleaner sources of energy to realize the ambitious RE target such as offshore wind, ocean and tidal stream, waste-to-energy, hydrogen, etc. DOE also plans to roll-out an Expanded Rooftop Solar Program (ERSP) to scale-up solar energy production and utilization at the end-use level and provide growth opportunities for local solar photovoltaic (PV) developers and installers.

²⁶ DOE. Philippines Power Statistics. [Philippine Power Statistic | Department of Energy Philippines \(doe.gov.ph\)](https://doe.gov.ph/philippine-power-statistic)

²⁷ DOE. PEP 2023–2050.

Figure 9: Renewable Energy and Coal Capacity (2022 vs. 2030, 2040 and 2050 Target)



GW = gigawatt, MW = megawatt, RE = renewable energy, PEP = Philippine Energy Plan, TWh = terawatt-hour.

Source: Department of Energy. Philippine Energy Plan 2023–2050.

26. **Renewable energy potential.** The Philippines has abundant RE resource potential. To monetize the available RE potential, the DOE launched a program to identify Competitive Renewable Energy Zones (CREZ). In 2020 they concluded CREZ Phase I and identified 25 CREZ with high-quality solar and wind resources across the Philippines with an estimated total capacity of 152,097 MW. It also included the potential for other RE sources such as geothermal, hydro,

and biomass.²⁸ The Philippines also has rich offshore wind resources estimated at 178 GW in technical potential.²⁹

Table 3: Potential Renewable Energy Generation Capacities Identified by the Competitive Renewable Energy Zones Process

Grid	CREZ Capacity (MW)				
	Solar PV	Onshore Wind	Geothermal	Hydro	Biomass
Luzon	35,031	54,115	285	270,603	210
Visayas	11,876	25,429	40	1,917	71
Mindanao	11,203	14,443	40	382,514	93
Total	58,110	93,987	365	655,034	374

CREZ = Competitive Renewable Energy Zone, MW = megawatt.

Source: NREL. [Ready for Renewables: Grid Planning and Competitive Renewable Energy Zones \(CREZ\) in the Philippines \(nrel.gov\)](#)

27. **Renewable energy challenges.** The Philippines’ RE sector faces several issues and key challenges to accelerate RE generation contributions. These include (a) lengthy licensing and permitting procedures, (b) grid capacity issues and difficulty to balance intermittent generation and mitigate grid concerns as variable renewables are scaled up, and (c) limited access to financing for smaller IPPs. Many of the issues are continuously being addressed by the DOE, together with the National Renewable Energy Board (NREB), other energy agencies, RE industry players, and stakeholders, with support from various international development organizations.

2.5 National Ambition for Decarbonization

28. To mitigate the climate risks as well as to meet its need for sustainable, reliable, and affordable power, the Philippines has committed to ambitious energy transition goals to ensure that the country can continue its growth trajectory without outsized contributions to growing climate risks.

2.5.1 The Philippines’ Nationally Determined Contribution

29. Philippines intended NDC under the Paris Agreement, submitted in 2015, pledged to reduce GHG emission by about 70% by 2030 relative to its BAU scenario for 2020–2030. In March 2017, the Philippines revisited and ratified its target of 70% reduction in GHG emissions by 2030. In 2021, the Philippines enhanced its commitment to a projected GHG emissions reduction and avoidance of 75%, of which 2.71% is unconditional and 72.29% is conditional, representing the country’s ambition for GHG mitigation for the period 2020 to 2030 for the sectors of agriculture, wastes, industry, transport, and energy.³⁰

²⁸ DOE. Philippines Power Statistics. [Philippine Power Statistic | Department of Energy Philippines \(doe.gov.ph\)](#)

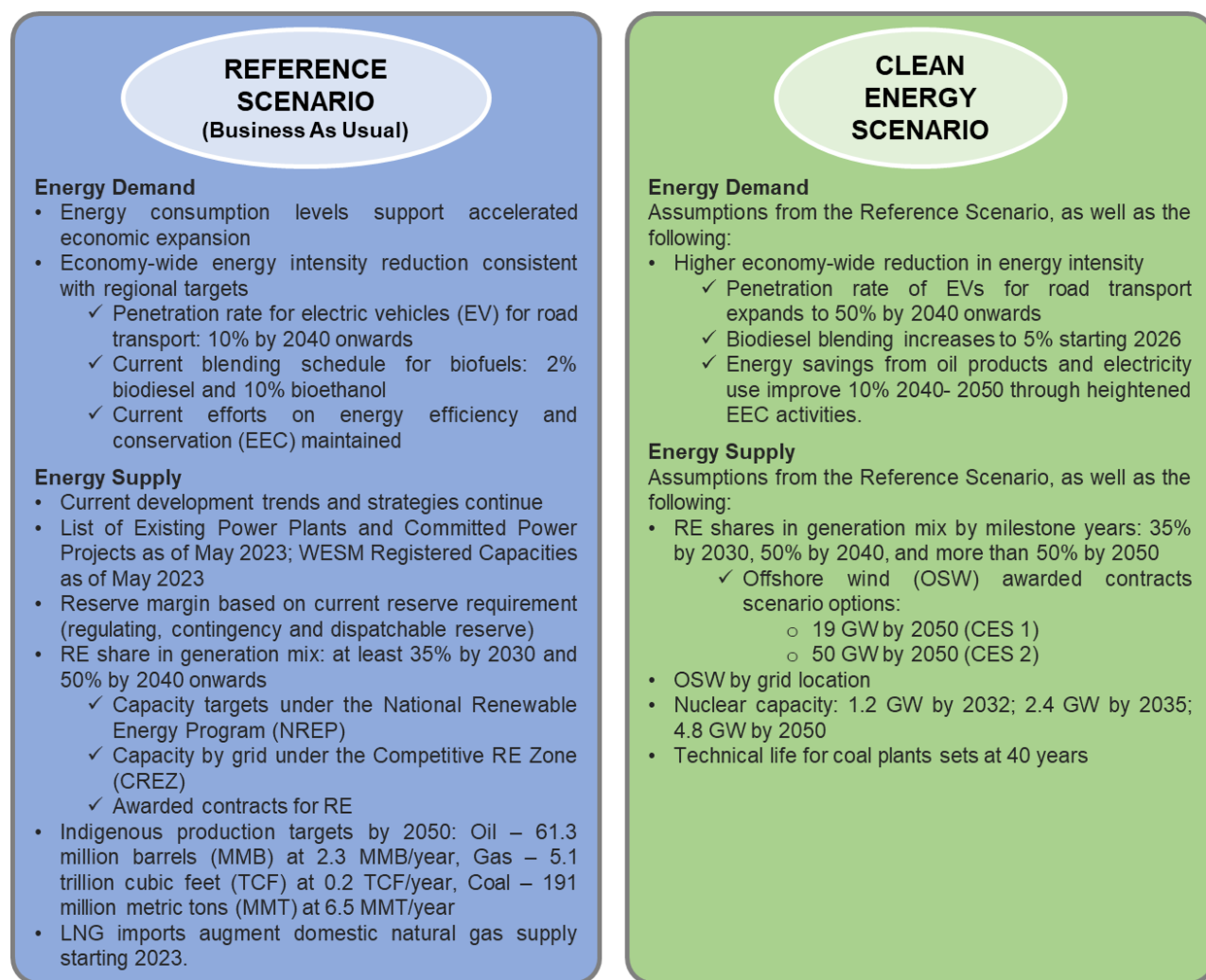
²⁹ World Bank. 2022. *Offshore Wind Roadmap for the Philippines*. Washington, DC: World Bank.

³⁰ <https://unfccc.int/sites/default/files/NDC/2022-06/Philippines%20-%20NDC.pdf>

2.5.2 Philippine Energy Plan 2023–2050

30. The DOE has formulated and updated the PEP and the implementing road map to serve as guideposts for a country-wide approach to achieve a goal of increasing the RE share to 35% by 2030, 50% by 2040, and more than 50% by 2050.³¹ Figure 10 compares the reference scenario and the clean energy scenarios based on the objectives and actions of PEP 2023–2050.

Figure 10: Reference Scenario (Business-as-Usual) vs. Clean Energy Scenarios – Philippine Energy Plan 2023–2050



DOE = Department of Energy.

Source: DOE. Philippine Energy Plan, 2023–2050.

31. In the PEP 2023–2050, DOE has considered a technical life of 40 years for CFPPs and is exploring ways to encourage private sector CFPP owners to voluntarily cease operations or repurpose the plant by this time, even though they are expected to be operational for much longer periods. In a scenario analysis conducted by the DOE, it is projected that there will be CFPPs with combined capacities of 3.6 GW to 4.8 GW that are expected to voluntarily retire or be repurposed considering they reached their maximum technical life by 2050. This represents

³¹ DOE. PEP 2023–2050.

approximately 30% to 40% of the current capacity. Related information on the assessment of the Philippines' capacity for coal transition is provided under Appendix 2.

2.6 Implementation Framework for Clean Energy Transition

2.6.1 Government Initiatives for Promoting Decarbonization of the Electricity Sector

32. The electricity sector was liberalized in 2001 under the Electric Power Industry Reform Act (EPIRA), which allowed for the liberalization and de-monopolization of electricity generation, transmission, and distribution. Today, the Philippines has one of the most deregulated and privatized electricity sectors in Southeast Asia, with private sector entities owning and operating most of country's electricity generation, transmission, and distribution assets.

33. The DOE is the apex body for governing and developing policy within the Philippines' electricity sector including the ideation and execution of a holistic road map to ensure an efficient supply of energy. The DOE is responsible for energy policy and planning and reports directly to the Office of the President. Further details on the structure of electricity sector in the Philippines are in Appendix 1.

34. Decarbonization of the electricity sector represents a cornerstone of Philippines' efforts to achieve its emissions-related goals. In line with its decarbonization aim, the Philippines is implementing a comprehensive reform program to enable the transition and has recently developed regulation and implementation plans supporting the same, including:

- a. **Moratorium of endorsements for greenfield coal-fired power projects.** The DOE issued a moratorium on the application and development of new CFPPs. DOE has announced that no greenfield CFPPs will be processed after 27 October 2020. This excludes existing power plant complexes that already have firm expansions plans and existing land site provision, and projects with substantial accomplishments, such as signed and notarized acquisition of land or lease agreement for the project and approved permits or resolutions from local government units (LGUs) and the Regional Development Council where the power plants would be located.³²
- b. **Guidelines on the decommissioning and mothballing of a generating plant or unit.** In July 2023, DOE issued guidelines regarding the decommissioning and mothballing of a generating plant or unit, excluding nuclear, providing clarity on procedures to be followed for decommissioning and mothballing of power plants.³³
- c. **Full foreign ownership in the renewable energy sector.** Until recently, exploration, development, and utilization of solar, wind, hydro and ocean or tidal energy resources could only be undertaken by Filipino citizens or juridical entities that are at least 60% Filipino-owned. However, in November 2022, DOE removed the Filipino ownership requirement imposed to allow full foreign ownership of RE power plants. This will help in accelerating the development of the RE sector in the country.³²
- d. **Renewable portfolio standards.** In 2022, the DOE raised the renewable portfolio standards (RPS) that require electric power industry participants or load-serving entities

³² DOE Philippines.

³³ [Department Circular No. DC2023-07-0022 | Department of Energy Philippines \(doe.gov.ph\)](https://www.doe.gov.ph/department-circular-no-dc2023-07-0022)

to source an agreed portion, from 1% to 2.52% annually starting 2023, of their supply from eligible RE facilities in on-grid areas.³²

- e. **Green Energy Option Program.** In 2021, DOE introduced the GEOP, which provides end-users or consumers with the option of choosing RE resources as their source of energy. GEOP is a voluntary policy mechanism that allows end-users with 100 kW and above demand to source their electricity supply from RE suppliers.³²
- f. **Green Energy Auction Program.** In 2021, DOE introduced the GEAP, which sets the framework for the facilitation of immediate and timely investment for new and additional RE capacities to ensure the provision of adequate supply under a competitive process. So, far two rounds of GEAP have been conducted in June 2022 and July 2023 respectively.³²
- g. **Competitive renewable energy zones.** CREZs are being developed by Philippines under a stakeholder-driven planning process chaired by the DOE with financial support from the United States Agency for International Development (USAID) and technical support from the National Renewable Energy Laboratory (NREL). This initiative aims to encourage the transmission upgrades and expansion toward the optimal utilization of the country's indigenous RE resources.³⁴
- h. **Renewable energy market.** Renewable energy market establishes a market for the trading of RE Certificates between and among trade participants.
- i. **Enhanced Net-Metering Program.** Allows end-users to generate electricity from RE-based systems up to 100kW for own use and sell their excess to the grid.
- j. **Open and competitive selection process.** Facilitates project development by offering well-characterized RE sites to project developers.
- k. **Preferential dispatch of all renewable energy resources in the wholesale electricity spot market.** On 5 October 2022, all RE generating units have been given preference in the wholesale electricity spot market (WESM) dispatch schedule to ensure its maximum output injection in the grid. This is to encourage additional investments because of guaranteed dispatch in the grid at their full capacity, allowing recovery of investments.
- l. **Establishment of the Policy and Administrative Framework for Offshore Wind Development.** In April 2023, the GOP President signed the Executive Order No. 21 *“Directing the Establishment of the Policy and Administrative Framework for Offshore Wind Development”*, which adopts a whole-of-government approach for streamlining and expediting the approval and issuance of permits, licenses, and clearances for offshore wind projects.
- m. **Update of Philippine Environmental Impact Statement System to integrate offshore wind and floating solar.** As of September 2023, DOE has issued 57 offshore wind energy service contracts. DENR, with support of ADB, is updating the national environmental regulatory framework to include rules, regulations, and processes for the assessment and management of environmental and social impacts of offshore wind and floating solar and

³⁴ USAID and NREL. *Ready for Renewables: Grid Planning and Competitive Renewable Energy Zones (CREZ) in the Philippines.* [nrel.gov/docs/ty20osti/76235.pdf](https://www.nrel.gov/docs/ty20osti/76235.pdf).

for the issue of environmental permits.

- n. **Low-Carbon Economy Act.** In 2020, the Committee on Climate Change of Philippines House of Representative conditionally approved the “Low-Carbon Economy Act,” which contemplates an intensity-based carbon emission trading scheme (ETS), initially focused on the power sector.³⁵
- o. **Energy Efficiency and Conservation Act.** Enacted in 2019, the act institutionalizes and enhances energy efficiency and conservation and grants incentives for projects promoting energy efficiency and conservation in the country. As part of the act, the National Energy Efficiency and Conservation Program was initiated which aimed at improving utilization of all users through energy efficiency and conservation programs and achieve annual energy savings of 23 million barrel of fuel oil equivalent (MMBFOE) and 5.086 gigagram (GG) CO₂ equivalent emission avoidance.³⁶
- p. **Sustainable finance framework.** To promote sustainable finance, the Philippine central bank, Bangko Sentral ng Pilipinas (BSP), is issuing enabling regulations such as the Sustainable Finance Framework (Circular No. 1085) in April 2020 and the Environment and Social Risk Management Framework in 2021, outlining expectations upon banks to adopt ESG elements as well as to set strategic environmental and social objectives for the banks’ credit operations. This may include progressively increasing targets on the proportion of loan portfolio allocated for green or sustainable projects or assets.
- q. **Sustainable Finance Roadmap and its Guiding Principles:** In October 2021, the Green Force or the Inter-Agency Task Force on Sustainable Finance, launched the Sustainable Finance Roadmap that tackles the policy and regulatory gaps in promoting sustainable finance in the Philippines.³⁷
- r. **Republic of the Philippines’ Sustainable Finance Framework:** The Development Budget and Coordination Committee approved in December 2021 the Sustainable Finance Framework to support its sustainability commitments, specifically to set out how it intends to raise green, social or sustainability bonds, loans and other debt instruments.³⁸
- s. **Gender plan and toolkit for the energy sector.** The DOE has developed a 5-year gender plan and a gender toolkit for the energy sector. The toolkit shall serve as a filter and rating workshop for evaluation gender sensitivity or responsiveness of a project. This provides an opportunity for energy collectives to promote gender equality through clean energy projects.

35. The DOE has been collaborating with various MDBs for development of power sector in the Philippines. Further details are included in Section 4 of the IP.

2.6.2 Decarbonization Initiatives of the Private Sector

36. As the electricity sector in Philippines is deregulated, contributions of the private sector toward decarbonizing the sector are imperative for achieving country’s decarbonization targets.

³⁵ [House Bill No. 2184, 18th Congress of the Republic | Senate of the Philippines Legislative Reference Bureau](#)

³⁶ DOE Philippines.

³⁷ [Gov’t launching Sustainable Finance Roadmap, Guiding Principles - Department of Finance \(dof.gov.ph\)](#)

³⁸ [ROP-Framework-Press-Release-vF.pdf \(treasury.gov.ph\)](#)

Private sector decarbonization-related initiatives remain nascent, but there is a growing interest among various private sector stakeholders who are eager to understand the various mechanisms available for reducing carbon emissions and contributing to the country's decarbonization goals. Several private sector developers and financial institutions have already taken significant steps toward this goal, for example:

- a. In November 2022, ACEN Corporation (ACEN) approved divestment of all its equity shares in its wholly owned subsidiary, South Luzon Thermal Energy Corporation (SLTEC), through energy transition financing. This will enable the voluntary early retirement of the 246 MW coal plant in Batangas, Philippines by 2040, 15 years ahead of the end of its technical life, thereby reducing up to 50 MMT of carbon emissions.³⁹
- b. In October 2020, Rizal Commercial Banking Corporation (RCBC) announced they would no longer finance coal plants. RCBC became the first in the Philippines and only the fourth bank in Southeast Asia to phase out from funding fossil fuel.⁴⁰
- a. In April 2021, Bank of the Philippine Islands (BPI) announced plans to bring down its coal exposure by half in 2026 and to zero by 2037.⁴¹
- b. BDO Unibank and UnionBank have released their own sustainable finance frameworks, which exclude fossil-fuel power generation or transmission from the use of proceeds of their green or sustainability bonds.⁴²

2.7 Just Transition, Gender, and Safeguards Needs across Clean Energy Transition Activities

37. A just transition of the coal sector in the Philippines is critical due to the role coal plays as a source of employment, public and private revenue, and power generation in the country. The coal sector also contributes significantly to basic service delivery in their host communities, both through LGU tax revenues but also as direct service providers. A well-managed transition will minimize potential adverse impacts that will be felt not only at the asset-level but also at the macro level across the country. Retiring a CFPP or a coal mine will incur direct impacts on formal, informal and contract workers, their families and communities and businesses associated with the CFPP and/or coal mine. Depending on the number of CFPPs and mines closed, over which timeframe, and how geographically close they are, there could be indirect impacts on people and businesses along the coal supply chain, as well as induced impacts on the economies of the barangays, municipalities, provinces, and regions due—for example, to reduced spending and government revenue, and potential electricity price increases. A just transition needs to consider impacts from power generation to coal mining, and related industries up and down the value chain, such as coal transport, manufacturers (including small and medium-sized enterprises [SMEs] and other formal and informal vendors, including street vendors, small canteens or carinderias, among others). As an initial step for a better understanding these impacts, the World Bank undertook a scoping study to identify and gain insights on key issues for a just transition in the Philippines, such as an initial mapping of the coal value chain, stakeholder mapping, an

³⁹ ACEN. <https://www.acenrenewables.com/2022/08/acen-approves-the-final-tranche-of-its-energy-transition-financing/>

⁴⁰ Ilagan, C. 2021. [For banks that backed PH coal boom, the path to renewable energy comes with roadblocks.](https://businessmirror.com.ph/2021/04/23/bpi-aims-to-halve-its-coal-project-financing-in-5-years/) *Philippine Center for Investigative Journalism*. 29 June.

⁴¹ <https://businessmirror.com.ph/2021/04/23/bpi-aims-to-halve-its-coal-project-financing-in-5-years/>

⁴² Ilagan, C. 2021. [For banks that backed the coal boom in the Philippines, the path to renewable energy comes with roadblocks.](https://businessmirror.com.ph/2021/04/23/bpi-aims-to-halve-its-coal-project-financing-in-5-years/) *Asia Democracy Chronicles*. 20 July.

analysis of government programs that could support just transition efforts and the need to support indigenous people in the transition. The study included a look at both CFPPs and coal mines. An example is on the largest coal mine in the country, located in Semirara Island, Caluya, Antique. Operated by Semirara Mining and Power Corporation (SMPC), this mine supplies coal not only to CFPPs but also cement plants and boilers for food, textile and canning industries, employing almost 4,000 jobs in 2021, of which almost 60% are hired locally. SMPC is responsible for 80% of Caluya LGU's total annual income and has made it the sixth richest municipality in the Philippines in 2020. SMPC's remittances constitute nearly all the revenues of Barangay Semirara, the Municipality of Caluya, and the Province of Antique. More data collection would be required to understand if this increase in revenue has translated into improved development indicators, especially when compared to other LGUs. Inevitably though, closing the Semirara coal mine will impact not just individuals and communities, but the local and national governments as well.⁴³

38. A number of CFPP units in the Philippines are located in coastal areas or along rivers because these are fired with imported coal, requiring access for ships to transfer coal, and because these are required to power economic activities in many coastal-based urban and rural settlements in the three major islands. A just energy transition should consider the socioeconomic impacts to these coastal communities and must be able to ensure that economic activities and service delivery in these areas are sustained, if not enhanced.

39. On a macro level, a managed shift away from coal would also result in shifts in labor force, job availability (type and location), as well as the type of human capital development needs of the Philippines. This includes the transition out of coal, but also the transition into RE, which needs a skilled workforce available to support planned investments in RE. There can also be opportunities of new types of businesses and supply chains.

40. Marginalized groups—minority ethnic groups, rural communities, and youth, are particularly at risk. Differentiated and contextual approaches are needed to account for this and identify opportunities to address challenges such as gender inequality through the transition. Enabling a gender-just energy transition in the Philippines requires a diverse talent pool. The Philippines maintains full parity in senior officer and technical workers, though women's income is just 71.6% that of men.⁴⁴ Encouraging women to pursue careers in traditionally male-dominated fields and providing them with education and training opportunities can help access higher-paying jobs. The Philippines is ranked 19th in the World Economic Forum's (WEF) Global Gender Gap Index report (GGGI) in 2022, deemed the most gender-equal country in Asia, yet challenges remain. The Gender Gap Index measures gender equality based on the following factors: economic participation and opportunity, educational attainment, health and survival, and political empowerment. While the Philippines scored best in educational attainment with a score of 0.999, it fared worst in political empowerment, with a score of 0.409.⁴⁵

41. According to the Philippines Statistics Authority, women outweigh men in literacy level, school enrollment and completion as well as high school and college graduation.⁴⁶ As of February 2022 tertiary education enrollment data shows (i) 2,046,648 women against 1,596,870 men; and (ii) women are disproportionately enrolled in the science, technology, engineering, arts and mathematics (STEAM) and non-STEAM/other fields. Women made up 686,379 of the STEAM students versus 811,784 men, and 1,360,269 of the non-STEAM fields compared to only 785,086

⁴³ World Bank. 2023. Philippines - Scoping Exercise for Just Transition.

⁴⁴ WEF. 2022. [Global Gender Gap Report 2023 Insight Report 2023](#). Geneva.

⁴⁵ Abad, M. 2023. [Philippines improves in 2023 world gender equality ranking](#). Philippine Institute for Development Studies. 24 June.

⁴⁶ Philippine Statistics Authority. [Women and Men in the Philippines](#).

men. Disparity is also obvious in the number of tertiary education graduates, where women considerably outnumber men in majors such as business administration, education and training, and medical and allied fields. At the same time men double the number of tertiary education graduates for engineering and technology (24,765 women against 50,692 men) and information technology (IT) related disciplines (19,034 women and 28,332 men). While women made majority of the technical vocational education and training (TVET) graduates in the country as of November 2021, their most enrolled TVET programs included tourism (hotel and restaurant) compared to agriculture forestry and fishery for men. The number of women in the workforce was also lower compared to that of men (34.5% and 54.8% in 2020 accordingly). Women also made about 10% of the unpaid family workers against around 7% of men in 2020 and outnumbered men in the number of overseas Filipino workers (1,055 thousand women and 716 men). The IEA report suggests that low employment rate of women in the energy sector is in part due to a pipeline problem, since there is still a disproportionately low number of women with science, technology, engineering and mathematics (STEM)⁴⁷ degrees, reducing the pool of potential female applicants for some firms and occupations. Specialization differences between men and women can be explained most notably by gender norms and expectations, which are further enforced by the lack of female role models.⁴⁸ Despite the fewer number of women in technical related fields and the cited disparities, women are drastically advancing in micro, small and medium enterprises (MSME), including training and benefits from the various MSME enabling programs run by the GOP. Women-led or -initiated MSMEs in the areas related to coal power plants may potentially be adversely affected by unjust energy transition, albeit these MSMEs may represent one of the entry points to engage more women, for example in the renewable or fossil fuel to clean energy-related services.

42. Indigenous peoples, who make up about 8.7% of the population, are among the poorest and most marginalized in the Philippines. The majority of indigenous peoples reside in Luzon and Mindanao and more than 50% rely on the land for their livelihoods.⁴⁹ A World Bank Just Transition scoping study found several issues related to indigenous peoples that have to be dealt with to ensure an equitable transition. For instance, CFPPs and coal mines have been required to establish carbon sinks as part of their operations. Closing of CFPPs will have repercussions for these existing carbon sinks and especially for indigenous peoples who most often conduct forest management in parts of the country. The carbon offset initiatives from the SMPC alone have resulted in 1.97 million inland reforested trees and 640,898 mangroves planted by the end of 2021. As RE is scaled up, land will be a critical resource. Traditionally, competition over land has been a key driver of conflict in the Philippines and in indigenous peoples' areas. The Indigenous Peoples Rights Act of 1997 (IPRA) highlights the need to recognize, respect, and protect the rights of indigenous cultural communities/indigenous peoples as a precondition for external investments in ancestral domain areas.⁵⁰ Consultations with indigenous peoples and safeguarding their rights to land and natural resources will therefore be a critical aspect to consider as part of a just transition.

43. Aligned with the ILO Guidelines for Just Transition (2015), the design and implementation of a just transition strategy should be propped upon coherent policies across the economic,

⁴⁷ The Department of Education (DepEd) of the Philippines included STEM as one of the tracks of the K to 12 senior high school curricula. The Philippines Commission on Higher Education (CHED) expanded the DepEd's vision for STEM to a clustering of disciplines as STEAM, where A represents agri-fisheries courses.

⁴⁸ IEA. 2022. [Understanding Gender Gaps in Wages, Employment and Career Trajectories in the Energy Sector](#). 19 August.

⁴⁹ Perez-Brito, C. 2021. No Data, No Story. Indigenous Peoples in the Philippines. World Bank Blogs.

⁵⁰ World Bank. 2023. Philippines - Scoping Exercise for Just Transition.

environmental, social, education/training and labor portfolios.⁵¹ These coherent policies will also provide the just transition framework for all to promote the creation of more decent jobs, including anticipating impacts on employment, adequate and sustainable social protection for job losses and displacement, skills development, and social dialogue. Moreover, just transition is not only about managing negative impacts, but also taking advantage of opportunities to improve livelihoods and drive growth and sectoral transformations through green industry diversification, promoting new sustainable business models, entrepreneurship, and cleantech innovation, reskilling and upskilling, strengthening social protection, and education reforms.

44. **The government’s commitment to a just transition.** The Philippines’ NDC highlights the country’s priority on “social and climate justice,” aiming to “accelerate the just transition of its sectors into a green economy” and to “deliver green jobs and other benefits of a climate and disaster-resilient and low-carbon development to its people.”⁵²

45. The Philippine Green Jobs Act (Republic Act 10771) was enacted in April 2016 to promote sustainable economic growth and the creation of “employment that contributes to preserving or restoring the quality of the environment.”⁵³ It is a landmark policy that integrates labor and employment dimensions in the country’s climate policy framework, enabling human capital development to ensure a just transition to a greener economy. The Climate Change Commission (CCC) considers the Philippine Green Jobs Act as a key contributor to both climate mitigation and adaptation strategies of the government encapsulated in its National Climate Change Action Plan (NCCAP) 2011–2028, specifically supporting two of the seven NCCAP thematic areas: climate-smart industries and services, and human security. The law mandates the GOP to provide incentives to enterprises that “generate and sustain green jobs,” which will be certified by the CCC. The Green Jobs Human Resource Development (GJ HRD) Plan was formulated by the Department of Labor and Employment (DOLE) in collaboration with the ILO under its Just Transition Pilot Project in 2018. The GJ HRD Plan provides a road map to sustain and create more green jobs that will drive industries under a green economy and provides a framework for developing human resources to ensure a just transition, anticipate green skills, and minimize the risks. The DOLE is currently revisiting the GJ HRD Plan to ensure consistency with the Philippine Development Plan (PDP) 2023–2028 and the proposed National Labor and Employment Plan 2023-28, which is an extension of the Decent Work Country Program (DWCP) 2020–2024.

46. The Green Jobs Act, in conjunction with the Labor Code of the Philippines and other social protection policies and programs, provides the framework for the GOP to support workers and communities that will be facing potential adverse impacts brought by the retirement of CFPPs and to create opportunities for them in the upscaled clean energy sector. Strong GOP commitment to just transition anchors discussions on energy transition in the Philippines, and this can increase public buy-in for climate change action and higher climate ambition. DOE, in close cooperation with the CCC, DOLE, DepEd, Commission on Higher Education (CHED), and the Technical and Vocational Training Authority (TESDA) has an ongoing initiative on Reskilling and Upskilling Filipino Workforce to Support the Global Energy Transition. The project aims to increase human capital for green jobs through: (i) institutionalizing a human resource development plan for the just energy transition; (ii) adopting an international accreditation system for green jobs; (iii) scaling up a promotional campaign for the required clean energy workforce in education institutions (public and private); (iv) attracting investments toward reskilling, training programs; (v) enabling

⁵¹ ILO. 2015. [Guidelines for a just transition towards environmentally sustainable economies and societies for all](#). Geneva.

⁵² Republic of the Philippines. [Nationally Determined Contribution Communicated to the UNFCCC on 15 April 2021](#).

⁵³ Government of the Philippines. 2016. [Republic Act No. 10771](#). *Official Gazette*. 29 April.

acceleration of clean energy plans, programs, and development on the demand and supply sides of the energy sector; and (vi) creating the environment, skills and expertise necessary for further research and development.

47. In October 2022, DOE, together with UNDP, conducted the Multi-Stakeholder Consultation on Just Energy Transition with energy stakeholders in the country including IPPs, electric utilities, transmission and distribution entities, among others, to gather their views on just transition for the sector and discuss policy options and ways forward to meet the country's NDC, ensuring that they are involved early in the process.

48. DOLE's research arm, the Institute for Labor Studies (ILS), has published a series of issue papers providing an overview of challenges and opportunities in pursuing just transitions in five key economic sectors of the country: construction, energy, waste management, transportation, and agriculture and food production. The issue paper on the energy sector has identified three potential priority areas for action such as policy coherence, social dialogue, and employment promotion and skills development.⁵⁴ Based on this initial work, ILS is now working toward developing a just transition framework for the workers in the sectors.

49. **Institutionalizing just transition.** Achieving just transition will require support for further upstream analytics and planning, and development of a framework for managing just transition during implementation, as well as protocols for monitoring. Building on ongoing initiatives, it will require continued cooperation and coordination between government ministries, civil society stakeholders, and the private sector including IPPs. This includes leveraging projects, programs, and expertise of non-energy ministries such as labor and education, as well as women empowerment and child protection.

50. The GOP can leverage the existing inter-departmental coordination structure under the Green Jobs Act, and could also expand to include sectoral departments such as the DOE to focus on the just energy transition, and departments involved in social protection and local government coordination such as the Department of Social Welfare and Development (DSWD), the National Commission on Indigenous Peoples (NCIP), Philippine Commission on Women (PCW), and the Department of Interior and Local Government (DILG), among others. At present, the focal department for just transition in the Philippines is still being discussed.

51. **Multilateral development bank support for a just transition.** Under the Joint MDB Paris Alignment Framework, ADB is leading the Sub-Working Group on Just Transition, which was formed under the Paris Alignment building block on policy engagement and policy development, to enhance collaboration and scale efforts of MDBs in meeting the growing demand for just transition support in developing countries. ADB, IFC, and the World Bank have been supporting countries, including the Philippines, that are committed to transitioning from coal, starting with upstream analytics to support the development of programs and policies consistent with the country's energy transition objectives and supporting stakeholder coordination and engagement. For a detailed overview of the ongoing ADB and World Bank Group (WBG) activities supporting just transition, see Appendix 4.

52. As part of ADB's ongoing ETM feasibility study for the Philippines, an initial assessment of the potential socioeconomic impacts and benefits of accelerated CFPP voluntary retirement in the country is being conducted. As part of this, ADB is looking at the socioeconomic context and impacts of the coal transition in some CFPPs and outlines how CFPP retirement can be managed

⁵⁴ [ILS. 2021. Just Transition to Low-Carbon and Climate-Resilient Industries: Energy Sector.](#)

by utilizing just transition framework plans to mitigate adverse impacts. Moreover, the study is identifying potential benefits of the early retirement of CFPPs, including improvement of environmental conditions and community health, positive impacts to the livelihoods of fishing communities and ecotourism, and reduced marine traffic congestion. ADB has also launched its Just Transition Support Platform in 2022 to support capacity building of developing countries in Asia and the Pacific to understand, strategically plan, implement, and finance just transition, contributing to the achievement of their commitments under the Paris Agreement. Dialogue and scoping work to identify needs and opportunities for just transition in seven countries, including the Philippines, are ongoing. ADB will continue to expand its coordination with development partners and the private sector to identify needs for training and credentialing for the RE sector. These opportunities will be operationalized through investments in the Promote Research Innovation through Strengthening Transformation of industries and Enterprises (PRISTINE) project. ADB also has a long-standing memorandum of agreement with ILO that provides the operational framework and practical modalities for cooperation focused on social protection. ADB and ILO are discussing collaboration on just transition activities for the Philippines, including support on the implementation of the Green Jobs Act.

53. The World Bank has years of experience in just transition stemming from their work on coal mine closure. In the Philippines, the World Bank completed a scoping exercise for more detailed understanding of key just transition issues in the country's context in June 2023. The scoping exercise included: (i) mapping of coal value chain (including institutional governance and regulatory process); (ii) spatial mapping of potential assets; (iii) stakeholder mapping; (iv) mapping of relevant social protection and social development programs; and (v) in-depth profiling of two selected CFPPs that included socioeconomic and spatial mapping of social and environmental resources and vulnerabilities—including presence of indigenous peoples, ancestral domains, ongoing conflict, and worker distribution by sector and labor skills profiles. The scoping study identifies a number of issues relevant to ensure a just transition but is only a first step. Identified issues will need additional analysis to inform just transition efforts in the Philippines.

54. **Multilateral development bank support for environmental and social governance in the energy sector.** ADB, IFC, and the World Bank have environmental and social safeguard policies, standards, and frameworks that aim to promote sustainability of funded projects and programs.⁵⁵ The purpose of the safeguard policies and standards are to identify adverse impacts of projects and programs to the environment, people, and vulnerable groups that may be affected by project and/or program implementation and identify measures to avoid, minimize, and/or mitigate potential adverse impacts and risks. The MDBs apply a range of safeguards instruments to comply with their policy requirements and standards. For IP project components, involving voluntary early retirement, CFPPs will be classified as existing facilities and subject to compliance audit to identify past or present environmental and social risks and impacts. Repurposing and redevelopment of CFPPs and development of renewables will be classified as new facilities and will be subject to environmental and social impact assessment, including land acquisition, involuntary resettlement, and indigenous peoples impacts. Where corporate finance is provided for a portfolio of assets or funding is provided through a financing facility via a financial intermediary, an environmental and social management system (ESMS) is prepared to manage environmental and social risks and impacts.

55. SESA is undertaken where significant strategic, geographical, and/or sector-wide environmental and social risks and impacts are anticipated. A high-level SESA scoping study was

⁵⁵ ADB Safeguard Policy Statement (2009) and World Bank Environment and Social Framework (ESF) approved in 2016. IFC Performance Standards on Environmental and Social Sustainability effective 1 January 2012.

prepared in 2022,⁵⁶ as part of ADB's ongoing ETM feasibility study for Southeast Asia, to provide a broad indication of the main environmental and socioeconomic impacts and opportunities likely to arise because of energy transition in the region. Adopting best international practice, the SESA follows the OECD Guidance for SEA and the draft International Impact Assessment Association SEA Guidance for Renewable Energy.⁵⁷ Between January 2023 and May 2024, ADB has undertaken a SESA scoping study for Philippines, which is discussed in more detail below in section 3.2.

56. ADB is supporting the Energy Regulatory Commission to develop a regulatory framework for offshore wind. ADB is also supporting DENR to develop environmental and social regulatory frameworks for offshore wind and floating solar. ADB is also contributing to parallel technical assistance, such as the marine spatial planning methodology and tool for offshore wind being developed by the Carbon Trust and Energy Transition Partnership. The methodology will define the criteria for suitable sites for offshore wind farms and the tool will be used to examine the sites already awarded with service contracts. ADB proposes support to BirdLife International to expand the Avian Sensitivity Tool for Energy Planning (AVISTEP)⁵⁸ to Philippines. AVISTEP can support planning of expansion of renewable energy by identifying sites for development that avoid significant impacts on birds and biodiversity.

⁵⁶ [Accelerating the Clean Energy Transition in Southeast Asia: Regional Scoping Report for Strategic Environmental and Social Assessment Applied to the Energy Transition Mechanism in Southeast Asia | Asian Development Bank \(adb.org\)](#)

⁵⁷ International Association for Impact Assessment. [IAIA Initiative to Develop and Promote SEA Guidance for Renewable Energy.](#)

⁵⁸ AVISTEP was developed by BirdLife International and ADB <https://www.adb.org/publications/avian-sensitivity-tool-energy-planning-avistep>

3. PROGRAMS DESCRIPTION AND FINANCING PROPOSAL

3.1 The Asian Development Bank, World Bank, and International Finance Corporation Engagement with the Government of the Philippines for Climate Investment Funds-Accelerating Coal Transition Investment Plan Design and Development

57. Since October 2021, when Philippines was selected as an ACT pilot country and was invited to develop its IP, the DOE, together with other key line departments and government agencies have diligently collaborated with the ADB, IFC, and the World Bank to establish a strong foundation for IP design and development. This includes detailed discussion on project concept structuring with relevant government agencies as well as leading private sector developers and financiers.

58. In addition, DOE and the joint MDB team have made efforts to engage with various stakeholders through joint missions and stand-alone consultations, aiming to disseminate information about the Philippines CIF–ACT IP. Participants joining these sessions included other development partners, nongovernment organizations (NGOs), civil society organizations (CSOs), think tanks, and private sector entities. The following is a summary of various stakeholder consultations undertaken by the joint MDB team.

- a. **Scoping Mission (August 2022).** In addition to joint MDB team, the scoping mission saw participation from key government agencies and other stakeholders including the DOE, DOF, CCC, DENR, DSWD, and the CIF Administrative Unit (CIF AU). The discussions at the scoping mission helped to (i) identify a broad strategy for ACT-supported investment consistent with the GOP energy and climate change policies, programs, and expenditure plans; (ii) review criteria and gathering government suggestions on candidate projects to be considered for ACT investment pipeline; and (iii) finalize roles and responsibilities of various stakeholders regarding the preparation of the CIF–ACT IP.
- b. **First Joint Mission (March 2023).** The first joint mission saw participation from DOE, DOF, and DENR. The discussion at the first joint mission helped in developing the IP project concepts. The session was well received with key interest to further follow the process, as the CIF projects would be identified and to continue engagement with the joint MDB team as the CIF–ACT IP progressed.
- c. **First stakeholder engagement meeting with nongovernment organizations, civil society organizations, and private sector entities (August 2023).** DOE and the joint MDB team presented the draft IP project concepts as well as updates on ongoing and upcoming work on just transition and SESA. Over 120 representatives from the GOP, NGOs and CSOs, the private sector, and international organizations joined the hybrid event and provided feedback and clarifications on the IP project concepts and the CIF–ACT process. Notable participants include DENR, CCC, DOF, DOLE, TESDA, DTI, NEDA, CHED, Energy Regulatory Commission (ERC), National Transmission Corporation (TransCo), National Electrification Administration (NEA), PSALM Corporation, National Power Corporation (NPC), SMPC, ILO, UNDP, and UNOPS Southeast Asia Energy Transition Partnership.
- d. **Second joint mission (September 2023).** The joint MDB team and the DOE discussed the draft IP and the proposed project concepts with the key government agencies involved in the design and implementation of the IP such as DOF, DENR, DTI, DOLE, CCC,

PSALM, and TESDA. Feedback from the meeting with CIF contributors in August 2023 was also shared.

- e. **Second stakeholder engagement meeting for the draft CIF ACT IP (September 2023):** The second stakeholder engagement meeting was organized during the two-week public disclosure period of the draft IP to discuss specific clarifications from stakeholders. Over 100 representatives from the Philippine government, civil society, the private sector, labor groups, trade unions and international organizations joined the hybrid event, providing inputs to contribute to the finalization of the IP.
- f. **Third stakeholder engagement meeting for draft CIF ACT IP (March 2024):** The DOE and the joint MDB team presented updates made on the project concepts, seeking inputs to the IP. It was held with 150 participants both in-person and virtually, from CSOs, labor unions, indigenous peoples groups, private sector, government agencies, representatives from the CIF Clean Technology Fund Trust Fund Committee member countries, as well as from the CIF Secretariat. Prior to this stakeholder engagement event, a comments matrix with detailed responses to comments received subsequent to the IP public disclosure in September 2023 was also provided by email to stakeholders and disclosed on ADB's website.

3.2 IP Crosscutting Priorities: Supporting Just Transition, Gender, and Strategic Environmental and Social Assessment

59. **Just transition framework.** Transitioning to an affordable, reliable, clean energy system while meeting growing energy demand is a development challenge leading to 2050. A just transition during a coal retirement or repurposing must put people, their communities, and the environment at the center, helping workers, communities, municipalities, and provinces build and access new economic opportunities in the transition to clean energy.

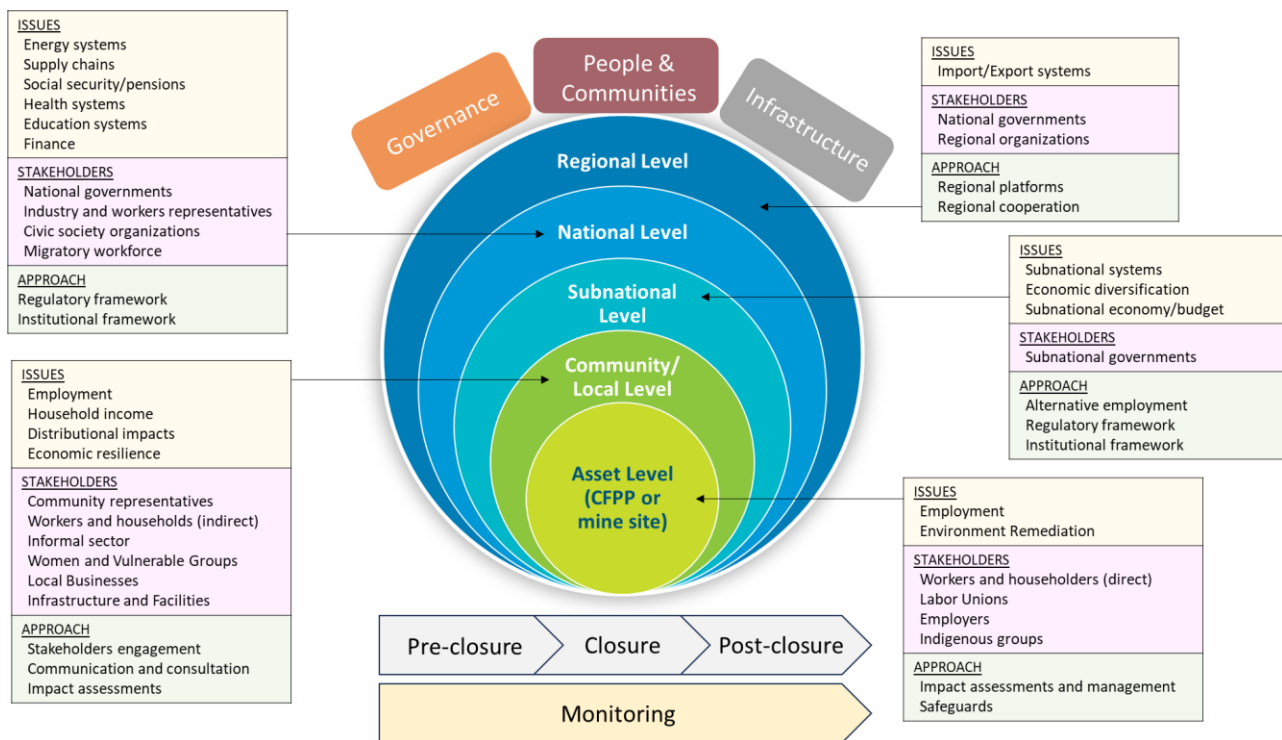
60. The impact of closures on local economies needs to be considered. Regional diversification and transformation to a new, lower-carbon economy in areas where there is mining and/or CFPPs that will close must leverage the human, natural and physical capital that is available through programs for reskilling and education, active labor market policies, community driven development and strengthening social development. Thoughtful approaches are also required to ensure that the transition to renewable energies does not create new social vulnerabilities and enhance the risk of conflicts.

61. Proper planning across the three pillars of governance, people, and infrastructure, well ahead of closure actions is critical to understand how positive early interventions can strengthen the enabling environment for just transition to avoid or manage impacts at the time of asset repurposing. The initial analytical work by ADB and the World Bank (see Section 2.7) have been used to inform the approach to just transition in the IP, providing a good understanding of the macro-level socioeconomic context for just transition in Philippines, and potential gaps in policy and institutional capacity that would need to be addressed to support a just energy transition. This includes deeper targeted assessment and analysis and development of a coordinated national approach to managing just energy transition. For a detailed overview of the ongoing ADB and WBG activities on just transition, see Appendix 4.

62. As shown in [Figure 11](#), stakeholder engagement under a national just transition framework is an iterative process and will be conducted across regional, national, subnational, community, and asset levels. These consultations are part of a process to create a social dialogue on just

transitions with the aim of incorporating stakeholder concerns and inputs in the just transition process. ADB is supporting the GOP in establishing an inter-agency just transition committee to guide the development and implementation of the national just transition framework. Once established, the committee will lead a multi-stakeholder forum, with support from ADB and World Bank, to provide a foundation for designing a cohesive and effective government-led approach. Simultaneously, for asset-level transitions, stakeholder groups will be identified prior to the assessments and refined during the consultation process to ensure adequate and meaningful representation and participation especially women, youth, vulnerable and marginalized. These consultations are a means for stakeholders who face direct, indirect, and induced impacts to provide their inputs on the just transition process. Discussions will focus around impacts due to mine site closure and early retirement of CFPPs, including decommissioning and repurposing for clean energy, and mitigation options which can positively impact livelihoods, environment, and the economy. Asset-level just transition assessments and processes will be conducted alongside environmental and social safeguards audits and will be complemented with actions at the local, subnational, and national level to ensure a programmatic approach to just transitions.

Figure 11: Just Transition Framework



Source: Asian Development Bank.

63. **Gender mainstreaming in the investment plan design.** The lack of access to vital energy sources for lighting, heating, cooking, transport, and economic production inhibits the productivity of people, especially women. Gender inequality impedes the access of MSMEs, wherein women predominate, to assets, labor-saving technology, and affordable loans. Social norms and gendered divisions of labor remain entrenched despite the introduction of new energy sources. Similarly, while RE sources may provide the potential for women to expand livelihood options, their entry into other domains of labor is affected by existing social norms and contextual factors. Therefore, integration and emphasis on gender-sensitive issues and actions will

contribute to more inclusive policies and reduce gender gaps. The USAID's Assessment of Women's Participation in the Energy Sector in Southeast Asia found that gender equality challenges in the region, including in the Philippines, continue to exist despite numerous laws and policies to enhance gender equality and inclusion. Employment opportunities in the energy sector still favor males over females with some exceptions, and educational institutions tend to guide males, rather than females, toward STEM education. Another key finding is that girls and women would benefit from training that helps boost women's confidence in their ability to pursue STEM studies and work in the energy sector. Programs for young girls that increase access to women role models are needed.⁵⁹ The IP design helps addressing access of women and girls to STEM related professions.

64. **Strategic environmental and social assessment (SESA) approach and stakeholder engagement** . SESA is a tool to assess the environmental and social impacts of strategic policies, plans and programs. The CIF–ACT IP preparation grant supported a national SESA scoping study to assess the environmental and socioeconomic impacts and opportunities (positive and negative) associated with energy transition which include accelerated coal retirement, RE deployment, associated infrastructure (such as transmission network and battery storage) and supply chains. Energy transition will require wide-ranging multisectoral changes that will give rise to environmental and social risks and impacts, but also opportunities that are not fully addressed in current national regulatory frameworks, institutional mandates, or resource planning. The scoping study included a review of existing data sources to understand the environmental and socioeconomic baseline, national laws, regulations, and guidelines and institutional and governance frameworks that are relevant to accelerated retirement of coal, deployment of renewable energy, related infrastructure, and supply chains, mapping of key stakeholders and their interests and the range of potential environmental and social impacts and opportunities of energy transition.

65. Energy transition stakeholders comprise many groups with diverse interests and objectives. A steering committee for SESA will be established, co-led by DOE and DENR with representatives from key line ministries, CSOs, NGOs, labor organizations, private sector, academe, and technical experts. The steering committee will coordinate the national SESA workstreams and collaborate with development partners and stakeholders to establish a strong foundation for the next steps of the national SESA. A stakeholder engagement plan is being developed based on initial stakeholder mapping. Stakeholder consultation is a fundamental principle of SESA to provide a platform to engage on energy transition issues and to identify and discuss differing views. SESA provides opportunities for stakeholders including government agencies (national, local, city, municipality, province), private sector, industry, CSOs, NGOs, local communities, marginalized groups (e.g., indigenous peoples, women) to present their perspectives on energy transition, to identify and validate key issues, and to comment on draft documents prepared for the SESA. Consultations will be through workshops, focus group discussions, and key informant interviews at national and local levels and will be integrated with the work on just transition. An important consideration for the SESA will also be the inclusion of a gender lens and evaluation of gender-related risks and impacts.

66. Key environmental and social issues identified through the SESA scoping study and the proposed SESA approach were presented at the first stakeholder engagement workshop in August 2023, at the second workshop in September 2023 and the third workshop in March 2024. ADB, DOE and DENR plan to hold three one-day workshops in regional centres, most likely in Luzon, Visayas, and Mindanao, to consult on the key issues identified in the SESA scoping study.

⁵⁹ USAID. [Assessment of Women's Participation in the Energy Sector in Southeast Asia](#).

Stakeholders will include national, local, and municipal authorities, relevant government-owned corporations, civil society groups, resource users, indigenous peoples, coal mine and coal power plant workers, RE workers, women, and representatives of vulnerable groups to inform next steps and priority interventions to support a just and sustainable transition. This will enable stakeholders to present their perspectives and comment on key environmental and socioeconomic issues and concerns that should be taken into consideration during the planning of the next stages of the SESA. The consultations will also provide the opportunity to build capacity of stakeholders on the concepts, purpose, roles, steps of the SESA process, and its relevance to the Philippines' environmental and social impact assessment process.

3.3 Investment Plan Financing

67. The IP financing plan is set out in the Table 4. Component 1 will focus on (a) facilitating the voluntary early retirement or repurposing of both Mindanao CFPP as well as other privately owned CFPP assets (taking into account the financial implications of existing debt, termination of contracts and closure preparedness); and (b) developing assets needed for replacement of power with clean energy (such as RE, energy storage solution, etc.). Component 2 will focus on activities that will support the governance and just transition. These include reskilling and upskilling of the relevant workforce to support RE development (Component 2.1), development of national just transition approach (Component 2.2) and strengthening of institutional and regulatory capacity (Component 2.3).

68. Overall, this IP is developed to align with ACT priorities. Approximately 5% of ACT funds will be allocated toward governance results, 23% of ACT funds toward people and communities and 72% of ACT funds toward infrastructure. The allocation for each component as specified in the Table 4 takes into account the evolving project designs and likely allocation within each component, which will be presented for approval at the CTF's Trust Fund Committee (TFC) during the project-level approvals.

Table 4: Indicative Financing Plan (\$ million)

#	Component	MDB Sector	ACT	MDB	Other / Private	GoP	TOTAL	Pillars		
								Governance	People & Communities	Infrastructure
Component 1: Accelerating Retirement / Repurposing of CFPPs and Replacement of Power										
1.1	Early Retirement of Mindanao CFPP	ADB (Private / Public ^c)	95 and 1 (grant) ^b	95	285		475 and 1 (grant)	✓		✓
1.2	Private Sector Decarbonization and Repowering Program	ADB (Private / Public ^c)	120 and 2 (grant) ^b	240	240		600 and 2 (grant)	✓		✓
1.3	Accelerating Development of Renewable Energy and Transition from Coal	IFC (Private)	140 and 5 (grant)	280	280		700 and 5 (grant)	✓		✓
Component 2: Just Transition and Governance										
2.1	Project PRISTINE	ADB (Public)	120 and 5 (grant)	280		50	450 and 5 (grant)	✓	✓	✓
2.2	National Just Transition Approach Development Program	ADB (Public)	2 (grant)	1 (grant)			3 (grant)	✓	✓	
2.3	Energy Transition Technical Assistance	World Bank (Public)	10 (grant)	600		5	605 and 10 (grant)	✓	✓	
TOTAL			475 and 25 (grant)	1,496	805	55	2,830 and 26 (grant)	23 (5%)	115 (23%)	362 (72%)

ACT = Accelerating Coal Transition, ADB = Asian Development Bank, CFPP = coal-fired power plant, GoP = Government of the Philippines, IFC = International Finance Corporation, MDB = multilateral development bank.

Notes:

- a. ADB (Public) is likely to manage the grant funding received for the Project.
- b. Grant funding will be primarily utilized for just transition-related activities.

Source: ADB, IFC and World Bank

69. **Financing terms.** Projects eligible for public sector lending terms will follow the financial terms and conditions for public sector concessional loans for ACT financing. The effective CIF lending rate for public sector projects will be determined and fixed at the time of loan agreement.

70. For private sector projects, MDBs will be flexible in their approach, project selection process, and utilization of CIF funds to expedite implementation and maximize impact on both a project-by-project and IP-wide basis most effectively. The financial instruments (e.g., grant, concessional, senior, or subordinated debt), pricing and terms of the funds will be tailored for each individual transaction to address the specific needs of each project, while adhering to the DFI Enhanced Blended Concessional Finance Principles for Private Sector operations, as applicable.

3.4 Proposed Project Concepts

3.4.1 Component 1: Accelerating Voluntary Retirement and Repurposing of Coal-Fired Power Plants and Replacement of Power

71. Projects under Component 1 have been designed to address following two issues:

- a. CFPPs continue to serve as viable base load option for Philippines electricity sector. GOP has committed to transition away from coal by issuing moratorium on greenfield CFPPs from October 2020 onward. However, the transition is not yet at the required scale or pace. The existing CFPPs (which are private sector owned except for Mindanao CFPP) operate with PPAs ensuring a fixed return to sponsors and avoiding “stranding” pressure. Moreover, CFPPs scheduled for decommissioning or those voluntarily retired can be replaced by RE, which can contribute to the reduction of emissions. Without an actual financial incentive, no amount of political will would be sufficient to accelerate the first set of voluntary CFPP retirements and repurposing and initiate the transformational change required for the transition from coal-to-clean energy.
- b. Recent surges in commodity prices, as well as the continued decline of natural gas supply from the domestic field, compounded by the lack of generation and transmission capacity caused blackouts and brownouts in recent years. This has led to a heightened focus on energy security and stability. The challenge grows more complex as the PEP 2023–2050 expects electricity demand to grow at CAGR of 5.4%–5.5% till 2050, necessitating significant investments in RE, storage, and grid infrastructure for successful decarbonization of the power sector while meeting the rapidly growing electricity demand, keeping an affordable price, and maintaining grid stability.

72. To accelerate transition away from coal, projects under Component 1 have been designed to expedite the voluntary retirement or repurposing of eligible CFPPs. To ensure a just transition, concessional climate finance will be utilized to help project operators absorb the financial impact of ending revenue streams early. Project operators may repurpose their resources or develop new assets for replacement of lost power supply to ensure smooth transition to cleaner energy sources while maintaining power affordability, security and reliability. Grant components are integrated in the design of the projects to support just transition activities at the asset level

including analyzing the impact of early retirement or repurposing on the labor force associated with the asset (formal, contractual/outsourced, informal), vendors and suppliers, indirect impacts on local workforce, businesses, communities and the value chain, and induced impacts on government revenue streams and social sector program implementation. These assessments, which are part of the just transition process provide intervention needs and entry points which help build a just transition plan and the implementation timeline. The just transition plan at the asset level will include working with local, provincial and national government and businesses and the financial sector through the national just transition approach (component 2) to address the indirect and induced impacts. Participation of key stakeholders in an iterative manner is an integral part of the just transition process. Key stakeholders in the just transition process include workers, local communities, vulnerable and marginalized groups, civil society, and local, provincial and national government units.

- a. **Project 1.1: Early Retirement of Mindanao CFPP.** ADB is proposing to utilize non-sovereign financing facility (\$95 million concession debt from CIF–ACT, \$1 million grant from CIF–ACT, \$95 million debt from ADB, \$285 million funding from commercial cofinanciers) to facilitate energy transition of 200 MW Mindanao CFPP. Currently, the Mindanao CFPP is being run by the private sector under a BOT concession until 2031. After this period, ownership of the asset will transfer to PSALM and the asset will have a remaining operational life of 15–20 years (assuming a useful life of 40–45 years). Additionally, PSALM serves as the offtaker of the power generated by the Mindanao CFPP and has the option to buy out the BOT concession.

The ADB ETM program aims to use a combination of (i) concessional and commercial capital to facilitate the early retirement of Mindanao CFPP (including a potential BOT buyout), (ii) subsequent decommissioning or repurposing of the asset, and (iii) replacement of power with clean energy and transmission assets (for example repurposing of the site into a solar park among other potential solutions). The ADB ETM financing, cofinanced by CIF–ACT, will be provided to the eventual private sector winning bidder. Such financing will be made available to bidders as a “stapled” option to maximize the impact of such financing by allowing bidders to consider the benefit of concessional financing in optimizing their proposed bid for the project.

- b. **Project 1.2: Private Sector Decarbonization and Repowering Program.** The CFPPs in the Philippines are predominantly owned by private sector entities, except for the Mindanao CFPP, which is under a BOT concession until 2031, after which ownership of the plant will be transferred to the PSALM. Although the DOE implemented a moratorium on greenfield CFPPs starting from October 2020, there remains a large imbalance between the current plus expected energy demand growth and the new capacity pipeline. The energy sector faces dual pressure to develop new RE sources and retire or repurpose their coal assets, while ensuring that the country’s energy security is preserved. Such balancing requires significant capital mobilization for the private sector, and thus it is necessary to incentivize the private sector to expedite this transition. ADB is proposing to utilize non-sovereign financing facility (\$120 million concession debt from CIF–ACT, \$2 million grant from CIF–ACT, \$240 million debt from ADB, \$240 million funding from commercial cofinanciers) for following two subcomponents:
 - **Subcomponent A.** ADB is proposing to utilize sustainability-linked lending facility to incentivize private sector borrowers with a significant portfolio of operational CFPPs to accelerate voluntary retirement and/or repurposing of these CFPPs in their portfolio. In parallel, such lending also aims to promote the development of

RE as an alternative source of electricity supply. This is accomplished by offering pricing incentives and/or triggering disbursement milestones when the borrower meets pre-agreed environmental, social, developmental, and/or governance targets.

- **Subcomponent B.** Significant investments are still needed to deploy firm RE sources for replacing outgoing CFPPs. ADB financing (cofinanced by CIF–ACT) will provide concessional and commercial funds to accelerate the development of RE in the Philippines (including technologies that have not yet achieved grid parity such as floating solar, pump hydro, battery energy storage system [BESS], etc.). Such funding will be provided as "stapled" financing to ensure benefits of concessional financing are considered in optimization of tariffs quoted by the bidders.
- c. **Project 1.3: Accelerating Development of Renewable Energy and Transition from Coal.** IFC will utilize ACT funding (\$140 million concession debt from CIF–ACT, \$5 million grant from CIF–ACT, \$280 million debt from IFC, \$280 million funding from commercial cofinanciers) to incentivize private sector utilities to consider voluntary early retirement or repurposing and transition from CFPPs across their energy asset portfolios through, for example, sustainability-linked loans or bonds. This project will be implemented by cofinancing towards greenfield RE projects including BESS and other technologies (such as offshore wind, floating solar and pumped hydro) to allow them to be more price competitive versus coal. This will create supply of price competitive, reliable RE power to the market, accelerating the contracting of PPAs backed by RE and displacement of PPAs backed by coal. This approach is aligned with the GOP's policy initiatives in the recent years such as RPS and GEAP, among others, to facilitate large-scale deployment of RE. This will be complemented by further developing firm RE power projects or sustainability targets and plans at the corporate level of private sector utilities, which then underpin sustainability linked financing instruments which can include concessional CTF funding to incentivize the transition. As many private sector CFPPs are owned through a portfolio of energy assets, this is the most appropriate stakeholder level to engage in facilitating the energy transition.

The investment plan further complements the government's efforts to encourage development of newer technologies such as energy storage, offshore wind, and floating solar. This takes a market-based approach that relies on market participants making investment decisions based on economic merit and distribution utilities (DUs) and/or electric cooperatives (ECs) required to procure power in a least-cost manner instead of government intervention. This is consistent with the country's long-standing energy policies that have created one of the most sophisticated and liberalized markets in the emerging world – one that relies minimally on government subsidies and funding. Energy transition away from coal will require dispatchable RE or storage, both of which tend to be more expensive than coal. CIF–ACT funding toward projects that involve such technologies and components will enable such projects to be price competitive and encourage large-scale and faster deployment by the private sector participants, which in turn will accelerate the government's energy transition plan.

IFC proposes to provide financing for such projects through a range of instruments such as senior debt and mezzanine financing (preference shares, convertible debt etc.). These instruments could also be structured as green and/or sustainability-linked financings with pre-agreed environment, social, or governance targets to incentivize the private sector

borrowers to undertake renewable energy projects, particularly those adopting newer technologies.

Box 1 : Repurposing of CFPPs

The IP frequently mentions repurposing of CFPPs alongside retirement as the future plan for the plants. Under the IP, the repurposing options of CFPPs may include site conversion or reuse of existing infrastructure and/or equipment following the retirement of the plant, such as transforming the facility into renewable energy generation plant, energy storage system, or utilization of the existing transmission infrastructure, amongst others.

Potential renewable energy options include solar or wind. Biomass may be supported as long as specific prerequisites to ensure sustainability, high-quality projects, and environmental compliance are followed. Emerging technologies like repurposing CFPPs to be fired with green ammonia and hydrogen could be further studied, although it is not presently economically viable. While these options may not be fully established also from a technical standpoint currently, the advancement in the use of hydrogen or ammonia as low-carbon alternative fuels is rapidly evolving. Excluding them from the scope of technologies supported by the MDBs could limit their potential to mitigate emissions and drive energy transition. In these cases, the supply chain will also be evaluated to ensure climate mitigation objectives are met. Repurposing of CFPPs into fossil gas or nuclear power plants will not be supported under the CIF ACT initiative.

Repurposing options will be selected on a case-by-case basis, taking into account technical and financial feasibility, technology maturity of the repurposing option, implementation time, potential emission reduction and just transition, and based on detailed environmental and social assessment following MDBs' policies and guidelines.

3.4.2 Component 2: Just Transition and Governance

73. International best practices for coal plant retirement have shown that a phased deployment of public concessional resources is needed. This approach will address structural impediments to the coal to clean energy transition through reforms to enable private sector investments in transition and cover costs not only for dismantling, remediation, or repurposing, but also just transition costs, which cannot be recouped through future revenue flows. Moreover, advocacy groups have also been calling for more grants specifically to support the just transition of affected workers and communities and to avoid further indebtedness of developing countries such as the Philippines. Component 2 projects are more programmatic in approach (i.e., not focusing on specific assets but can use some as proof of concept) and are designed to support the GOP in its country-driven just energy transition by developing and implementing comprehensive reforms across wide range of energy transition areas and through developing a national just transition approach, enhancing reskilling and upskilling programs focused on clean and efficient use of energy, and ensuring continued basic service delivery to affected communities as well as access to diversified livelihood opportunities and economic development.

- a. **Project 2.1: Project PRISTINE.** ADB is proposing utilization of the financing facility (\$120 million concession debt from CIF–ACT, \$5 million grant from CIF–ACT, \$280 million debt from ADB, \$50 million counterparty funding from the GOP) for reskilling and upskilling of human capital who will be affected by the transition to clean energy. The PRISTINE project will create a pathway for workers from traditional energy sectors to participate effectively

in the field of RE and innovation by providing cutting edge training and accreditation, and applied research. The project will be in line with the needs and gaps highlighted in the PDP 2023–2028 and the Philippines National Innovation Agenda and Strategy Document 2023–2032. This support will be provided through four universities that are located across the Philippines and will leverage the Knowledge Innovation Science and Technology Park or equivalent national program.

The universities will establish knowledge and innovation hubs focusing on emerging technologies including applied research, innovation, and skill development in RE development and application (may include but not limited to energy storage, tidal, hydro, and offshore wind technology); and technology relating to electric vehicle production and maintenance. They will introduce green and digital tools and processes for upgrading SMEs. Additionally, the project will improve the innovation capacity of the local and national startup ecosystems by promoting startups and innovative enterprises. The project will promote collaboration for workforce training and credentials. The project aims to gain ADB Board approval and begin implementation by early 2025. In total, the project will aim to implement new training courses on installation, commission, repair, maintenance of RE assets (offshore wind, energy storage, green hydrogen, etc.) and climate technology (electric vehicle, smart and advanced climate agriculture), resulting in reskilling of 3,000 workers and ensuring expanded income and livelihood generation opportunities, and training 2,000 new graduates.

- b. **Project 2.2: National Just Transition Approach Development Program.** ADB and the World Bank are in dialogue with the GOP to identify the focal ministry responsible for the development of a National Just Transition Approach (NJTA) and managing cross-government coordination with relevant departments and entities. ADB is proposing to utilize \$2 million grant from CIF–ACT along with \$1 million funding from ADB and other donors under the Just Transition Support Platform. Following the strong emphasis of the GOP for a contextual and country-driven transition, ADB will work closely with the GOP and the World Bank to determine the appropriate approach to institutionalizing just transition in the Philippines. This will include (i) identifying further analytical work required, building on initial work by ADB and the World Bank that could cover, among others, socioeconomic impact modeling, landscape analysis, stakeholder mapping, labor audit, skills and education mapping, and strategic social and environmental assessments; (ii) stocktaking to identify relevant policies, regulations, programs and activities already ongoing that can inform the process and/or be leveraged as part of the approach; (iii) designing a participatory consultation process to ensure meaningful engagement and input from a broad range of stakeholders including government (including subnational), nongovernment, civil society, labor organizations, business, and academics; (iv) developing the NJTA such as a framework, plan, or guidance document; (v) establishing an institutional mechanism for implementation and monitoring and reporting; and (vi) undertaking training and capacity building to support implementation. It will be piloted for the energy sector and can later be expanded to other priority sectors of the GOP’s NDC with additional assistance. Activities and outputs could span from the asset level to national scale. The approach will be harmonized with the initiatives of other development partners, and with the components of this IP that are relevant to just transition.
- c. **Project 2.3: Energy Transition Technical Assistance Project.** Philippines will need to strengthen the legal, institutional, and regulatory environment in the energy sector to enable the energy transition. Reforms and capacity building are needed to (i) establish a framework for addressing the retirement and repurposing of CFPPs; (ii) manage the

adverse impacts of the transition away from coal on workers and communities; (iii) unleash the full potential of energy efficiency and demand side management; (iii) create a level playing field for RE with fossil-fuel generation by introducing carbon pricing mechanisms; (iv) incentivize provision of ancillary services and promote investment in grid capacity and flexibility to address the challenges of large-scale integration of variable RE; (v) strengthen power system and energy sector planning to better guide energy transition investment decisions; and (vi) ensure that electricity markets are able to incorporate significant variable RE and deliver the benefits of increased competition to consumers while having mechanisms in place to ensure security of supply.

The knowledge and capacity of electricity sector institutions needs to be strengthened to facilitate the shift away from coal and toward a low-carbon energy system. It will be important to support electricity sector institutions such as the DOE, ERC, Independent Electricity Market Operator of the Philippines (IEMOP), and TransCo to (i) learn from international expertise and experience when designing reforms, (ii) prepare a pipeline of projects that can be implemented with both private and public sector financing, (iii) carry out training and capacity building program for their staff and other stakeholders in the sector, (iv) adopt cutting edge digital information and organization management systems, and (v) undertake consultations among stakeholders and build consensus on reforms and investments that will be needed to achieve the government's decarbonization targets.

The Energy Transition Technical Assistance Project (ETTAP) will strengthen institutional and regulatory capacity for undertaking the energy transition in Philippines. The \$10 million grant for ETTAP will be implemented alongside proposed World Bank development policy financing (DPF) of \$600 million, together with \$5 million contribution from GOP, which will support the adoption of key policies and reforms to support energy transition and climate adaptation in the Philippines.

The DPF will have policy pillars related to (i) coal to clean energy transition and adoption of low-carbon pathways, (ii) just energy transition, (iii) RE scale up, (iv) energy efficiency and demand side management, (v) transition to electric mobility, (vi) electricity market reforms, and (vii) electricity network modernization and flexibility. The ETTAP will support analytical work, development of policy proposals, project preparation, training, knowledge exchange with other countries, stakeholder consultations, adoption of information and organization management systems for key electricity sector institutions mentioned earlier.

4. ADDITIONAL DEVELOPMENT ACTIVITIES

4.1 The Government's Energy Sector Collaboration across Development Partners

74. The GOP's principal development partners in the energy sector include the ADB, IFC, World Bank, Carbon Trust, Embassy of Japan, Embassy of United Kingdom (UK), European Union (EU), Global Green Growth Institute (GGGI), Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), Japan International Cooperation Agency (JICA), OECD, UNDP, United Nations Industrial Development Organization (UNIDO), USAID, US Embassy Manila, and World Resources Institute (WRI). The GOP has been working with its development partners in its energy transition, focusing on enhanced energy efficiency, RE and other emerging technologies (such as BESS, pump hydro, etc.), energy resiliency, rural electrification, and sustainable transport.

75. Key loans, grants, and technical assistance programs by the main energy sector development partners are listed in Table 5.

Table 5: Summary of Development Activities (2013 onward)

Development Partner	Project Name (and Key Activities)	Year Approved	Commitment (\$ million)
Asian Development Bank	Transaction Advisory Services for Privatization of CBK Hydropower Project	2023	2.0 ^a
	Davao Public Transport Modernization Project	2023	1,015.0
	Climate Change Action Program (Subprogram 1)	2022	250.0
	Enabling a Just Transition to Low-Carbon and Climate-Resilient Economies and Societies in Asia and the Pacific (<i>TA for: strengthening capacity of countries to implement a just transition</i>)	2022	1.0
	Southeast Asia Energy Sector Development, Investment Planning and Capacity Building Facility, Phase 2 (<i>TA for: tools for LGUs for EE and small renewable energy procurement and financing; geothermal de-risking roadmap; a new approach to ancillary services; and offshore wind regulatory framework</i>)	2021	1.7
	Accelerating the Clean Energy Transition in Southeast Asia (<i>TA for ETM feasibility studies</i>)	2021	2.3
	Floating Solar Technical, Environmental and Social Assessments for Improved Implementing Rules with the LLDA	2021	0.6
	New Technology for In-Canal Hydro with Integrated Solar and Storage Micro-grid	2019	1.5
	AC Energy Green Bond Project	2019	20.0
	150 MW Burgos Wind Farm Project	2015	20.0

Development Partner	Project Name (and Key Activities)	Year Approved	Commitment (\$ million)
	Promoting Sustainable Energy for All in Asia and the Pacific (<i>TA for feasibility studies, investment opportunity identification, pilot projects, and knowledge sharing and capacity building</i>)	2015	0.5
World Bank	Access to Sustainable Energy Project: investments in off-grid rural electrification and solar power plants in rural distribution network	2016	24.0
	Electricity Sector Governance Strengthening: technical assistance to modernize/digitalize information management systems of the National Electrification Administration and the Energy Regulatory Commission, among other advisory activities.	2016	8.0
	Energy Transition Programmatic Technical Assistance: supported the development of Philippine Offshore Wind Roadmap and power sector decarbonization analysis.	2021	1.1
	Energy Transition Support: supporting green and smart transmission planning.	2023	0.5
	Preparation Project for Agus Pulangi Hydropower Complex for Rehabilitation	2022	0.70
International Finance Corporation	AC Energy Green Bond	2019	75.0
	EDC Green Loan III	2019	60.0
	BDO Green Bond	2022	150.0
	BPI Green Bond	2023	250.0
	CREI Green Loan	2022	25.5
European Union	Access to Sustainable Energy in the Philippines (ASEP)	2015	67.33
	Green Economy Programme in the Philippines	2024	N/A
United Nations Development Programme	Development for Renewable Energy Applications Mainstreaming and Market Sustainability (DREAMS Project)	2016	5.20
	Philippines NDC Support Project	2018	2.35
United Nations Industrial Development Organization	Renewable Energy Technology to Increase Value Added of Seaweeds in Tawi- Tawi	2019	3.06
United States Agency for International Development	Energy Secure Philippines (ESP)	2020	34.00
	Competitive Renewable Energy Zones (CREZ) Phase 2		

Development Partner	Project Name (<i>and Key Activities</i>)	Year Approved	Commitment (\$ million)
Embassy of Japan	Non-Project Grant Aid for the Construction of Waste-to-Energy Facility in Davao City	TBD	35.46
Deutsche Gesellschaft für Internationale Zusammenarbeit	Clean, affordable, and secure energy for Southeast Asia (CASE Project)	2020	3.06
	Cool Contributions fighting Climate Change Phase II (C4 II)	2020	N/A
	Air Conditioning Transformation Minimum Energy Performance Standards (ACTMEPS)	2023	N/A
	SupportCCC II	2015	N/A
Embassy of the United Kingdom	Philippine Emissions Pathways Calculator (UK-BEIS 2050 Calculator Pathway)	2021	N/A
	UK-FCDO ASEAN Low-Carbon Energy Programme	2019	N/A
Carbon Trust	Philippines Offshore Wind Joint Industry Programme	2022	N/A
Japan International Cooperation Agency	Collaboration Program with the Private Sector for Disseminating Japanese Technology for Electricity Distribution System and Management in the Philippines	2017	N/A
	Knowledge Co -Creation Program Long -Term Training Program: Human Resources Development for Electricity and Energy Sector/Energy Policy		N/A
	Knowledge Co -Creation Program Long -Term Training Program: Human Resources Development for Governmental Officers and Researchers in Mineral Resources Rich Countries (KIZUNA)		N/A
United States Embassy Manila	Clean Energy Demand Initiative	2022	N/A
	Energy Resource Governance Initiative	2022	N/A
	Geothermal Development Initiative	2022	N/A
	Gas Policy Development Project	2018	N/A
	Foundational Infrastructure for Responsible Use of Small-Modular Reactor Technology (FIRST)	2021	N/A
	Offshore Wind Technical Assistance	2022	N/A
Organisation for Economic Co-operation and Development	Clean Energy Finance and Investment (CEFI) Roadmap of the Philippines	2022	N/A
	Clean Energy Finance and Investment Training	2023	N/A
World Resources Institute	Clean Energy Investment Accelerator	2018	N/A

Development Partner	Project Name (<i>and Key Activities</i>)	Year Approved	Commitment (\$ million)
Global Green Growth Institute	Off-grid Solar Home Systems Deployment in Disaster Vulnerable Low-income Communities in Surigao Islands	2023	N/A
	Mainstream Energy Efficiency in MSME buildings in the Philippines	2023	N/A

ASEAN = Association of Southeast Asian Nations; BEIS =Department for Business, Energy, and Industrial Strategy (UK); ETM = Energy Transition Mechanism; FCDO = Foreign, Commonwealth & Development Office (UK); LGU = local government unit; LLDA = Laguna Lake Development Authority; MSME = micro, small, and medium-sized enterprises; MW = megawatt; N/A = not available, NDC = nationally determined contribution; RE = renewable energy; TA = technical assistance; UK = United Kingdom.

^a Cost reimbursable upon successful award of the project.

Source: ADB, IFC, World Bank, Department of Energy.

5. IMPLEMENTATION POTENTIAL WITH RISK ASSESSMENT

76. Table 6 presents a summary of risk, mitigants and implementation potential assessments for the CIF–ACT Philippines IP as proposed.

Table 6: Implementation Potential and Risk Summary

RISK	MITIGATION	RESIDUAL RISK
<p>Macroeconomic instability. The Philippines witnessed a significant 9.5% gross domestic product (GDP) contraction in 2020 due to the impact of the coronavirus disease (COVID-19) pandemic, with broad-based effects across sectors. However, the country has since exhibited a robust recovery, achieving GDP growth rates of 5.7% and 7.6% in 2021 and 2022, respectively, primarily driven by a rebound in domestic demand.</p> <p>Despite this positive trajectory, the Philippines now faces several external headwinds, including the deteriorating global demand, the ongoing Russian invasion of Ukraine, and a slowdown in the People’s Republic of China. In addition, domestically, the country is facing the issue of high inflation. These issues pose threat to the country’s economic growth and fiscal stability.</p>	<p>The Government of the Philippines (GOP) has been implementing structural reforms to encourage more investments and trade. Programs have been undertaken to manage inflation, improve revenue mobilization to support public investment and spending efficiency.</p> <p>Restrictions on the participation of foreign investors have been eased through amendments to the Retail Trade Liberalization Act, Foreign Investment Act and the Public Service Act allowing full foreign ownership in key sectors like telecommunications, airlines, shipping, railways, and expressways. The RE sector has also been opened to full foreign ownership. These are complemented by other reforms including the enhancement of the regulatory framework for Public–Private Partnerships (PPPs) and ratification of the Regional Comprehensive Economic Partnership (RCEP) to attract more foreign direct investment. Public investment continues to lift growth. Infrastructure spending, which equaled 5.8% of GDP in 2021, is planned at 5.0%–6.0% of GDP for the medium term.</p> <p>The GOP’s medium-term fiscal consolidation plan is anchored on raising revenue through ongoing tax reforms and proposed additional tax measures. Digitalization programs have enhanced tax administration and spending efficiency, supplemented by continuing public financial management reform. The right-sizing of the government bureaucracy is being pursued to streamline government operations and enhance public service delivery. Key reforms in the agriculture sector, including the liberalization of rice trade and productivity-enhancing programs</p>	<p>Low</p>

RISK	MITIGATION	RESIDUAL RISK
	<p>have helped improve domestic food supply and manage inflation.</p> <p>The Asian Development Bank (ADB), International Finance Corporation (IFC), World Bank and other development partners continue to provide advisory and financing support to advance the country's reform momentum to support an inclusive and sustainable growth amid the impacts of the COVID-19 pandemic and climate change.</p>	
<p>Policy and regulatory framework. Clarity of policies and implementing regulations related to energy transition.</p> <p>In addition, given the ongoing global energy crisis and global geopolitical situation, there is a risk of policy reversal and increased reliance on coal.</p>	<p>The electricity sector in the Philippines is largely privatized. To facilitate transition from coal to clean energy, the Department of Energy (DOE) implemented a moratorium on greenfield coal-fired power plants (CFPPs) in October 2020 along with several initiatives to promote development of renewable energy (RE) as highlighted in Section 2.6.1 of this investment plan (IP).</p> <p>The GOP has already developed road maps for energy transition. In addition, GOP together with multilateral development banks are exploring ways to facilitate managed transition of existing private sector CFPPs while ensuring power security and reliability. However, such retirement and/or repurposing would be done by the private sector on a voluntary basis.</p>	Low
<p>Technology. Global implementation of energy transition initiatives are still in their nascent stage, and there is ongoing uncertainty regarding various emerging technologies for repurposing CFPPs and scaling up RE. These solutions require careful considerations regarding cost, timeline, design, environmental and social risks, and implementation.</p>	<p>A significant amount of research is being developed across the globe to assist public and private decision-makers involved in energy transition. This research provides widely accepted methodologies that can be used to evaluate the most efficient, cost-effective, and fair options for consideration.</p> <p>The projects concepts proposed in the IP are designed to accommodate innovations and development happening in the technological space.</p>	Low
<p>Private sector engagement: CFPP early retirement. Active private sector engagement in CFPP voluntary early retirement has been</p>	<p>The support for the developing precedent transactions under Project Component 1.1 1.2 and 1.3 will be critical to reduce</p>	Medium

RISK	MITIGATION	RESIDUAL RISK
<p>hindered by: (i) government approval concerns given current power supply constraints; (ii) limited access to finance given lack of inclusion in prior green finance taxonomy; and (iii) uncertainty about what early retirement entails from a financial, or just transition cost standpoint.</p> <p>Renewable energy. Active private sector engagement in RE has been hindered by (a) lengthy licensing and permitting procedures, (b) grid interconnection issues and difficulty to balance intermittent generation and mitigate grid concerns as renewables are scaled, (c) limited access to financing for smaller independent power producers, and (d) foreign ownership restrictions.</p> <p>Transmission. The possible reduction of baseload CFPP and the simultaneous expansion of renewable energy facilities poses new challenges in the operation of the transmission grid, risking the stability of the power system. The fewer conventional power plants available present challenges in maintaining the balance of reactive power demand of the grid.</p>	<p>uncertainties from financial, technical, contractual, and operational perspectives, and to clarify abatement calculation methodologies as well as definitions for upcoming transition finance taxonomy discussions.</p> <p>DOE is currently in the process of reviewing and updating the “Omnibus Guidelines Governing the Award of Renewable Energy Contracts and Registration of Renewable Energy Developers” which is expected to provide clarity on process to be followed for the development of RE including streamlining the licensing and permitting requirements. DOE is in the process of setting-up the Energy Virtual One-Stop Shop (EVOSS) infrastructure system which will streamline the permitting process for power generation, transmission, and distribution of projects.</p> <p>Additionally, DOE together with TransCo and NGCP are exploring various avenues to expand and strengthen the transmission network within the Philippines. The Mindanao-Visayas Interconnection Project (MVIP) which will connect the Mindanao and Visayas power grids, is expected to be fully operational by Q4 2023. The MVIP project will allow linking together all three major Philippine islands (Luzon, Mindanao and Visayas) to create one grid and ensure the sharing of energy sources across the network.</p> <p>Recent auctions under the Green Energy Auction Program have demonstrated the potential for lower prices for RE and this trend is only expected to continue and lead to improved project financing prospects.</p> <p>DOE has also updated its circulars to remove the stipulations that required local ownership on certain RE resources. With the change, foreign investors can now be majority owners of RE investments.</p>	

RISK	MITIGATION	RESIDUAL RISK
<p>Livelihood and community risks from a clean energy transition. Just transition is an approach that is used to avoid and mitigate any risks of implementing climate change efforts that are not well prepared and managed. Therefore, the risks lie in the implementation of climate change policy and processes without the inclusion of a just transition framework.</p> <p>If climate mitigation efforts, such as the early retirement of CFPPs, are not carefully managed through a just transition approach, economic changes could result in increased social inequality, worker disillusionment, strikes or civil unrest and reduced productivity, as well as less competitive businesses, sectors, and markets (ILO, 2015).</p>	<p>Just transition requires cross-government coordination on policies and regulations, data-driven decision-making and participatory processes to ensure that affected workers and communities, including women and vulnerable groups, are aptly supported in the coal-to-clean energy transition. A comprehensive approach to just transition, including development of a national just transition approach, is necessary to anticipate and mitigate key aspects that can pose huge challenges in an energy transformation process. While the GOP has not identified the focal ministry for just transition yet, there have already been efforts to consult with a wide range of stakeholders on energy transition (led by the DOE) and to conduct comprehensive preparatory work to understand the context and dimensions of implementing a just energy transition in the country. Labor groups, workers, local communities, women, and vulnerable groups, nongovernment organizations and other stakeholders must be involved in every stage of the process for the transition to be just.</p>	<p>Medium</p>
<p>Environmental and social impacts. There are significant environmental or social legacy issues and unresolved complaints related to historical acquisition of the land for an existing coal facility and/or operation of the facility that may require costly clean-up and/or compensation.</p> <p>Environmental and social issues are not adequately considered in site selection, design, and implementation of new renewable energy projects. Existing regulatory frameworks may not include sufficient provisions for some new types of renewable energy, supporting industries and supply chains. Regulators may lack mandate and capacity related to new technologies and industries.</p>	<p>DOE, the Department of Environment and Natural Resources (DENR), independent power producers (IPPs), and the private sector should undertake comprehensive due diligence, stakeholder engagement and consultations, environmental and social safeguard assessment, in project design, management, and monitoring. Existing facilities will be subject to audit to assess past and present environmental and social concerns to assess compliance, and reputational and economic risks related to an intervention.</p> <p>ADB is providing support to DENR to help develop regulatory frameworks and environmental permit requirements and guidelines for offshore wind and floating solar.</p> <p>Multilateral development banks to support programs to address regulatory,</p>	<p>Medium</p>

RISK	MITIGATION	RESIDUAL RISK
	institutional, and capacity gaps, including CIF–ACT support programs and instruments (such as those proposed through ETTAP, just transition and SESA).	
<p>Limitation of scaling-up of project concepts. Any challenges in replicating or scaling-up the pilot projects for further coal transition</p>	<p>With respect to working with DOE, PSALM and other relevant stakeholders, the IP has incorporated robust support for capacity development and knowledge transfer to ensure the replicability and scalability of the project within and across various agencies.</p> <p>Regarding interventions in the private sector for coal transition, the first project will be designed to address “initial viability” concerns. Acting as a pathfinder project, it aims to provide practical insights to ADB and other development institutions regarding the comprehensive considerations involved in designing and planning an accelerated transition away from coal for private sector IPPs. The availability of concessionary financing will play a crucial role in accelerating the transition and establishing a roadmap for other CFPP IPPs.</p> <p>In terms of scaling up RE projects, private sector financing will be designed in line with previous CIF/CTF programs, demonstrating clear pathways to sustainability.</p>	Low

Source: Department of Energy.

6. MONITORING AND EVALUATION

6.1 The Philippines' Theory of Change

77. **The Philippines' theory of change.** If the Philippines (a) formulates a comprehensive strategy for transition from coal to clean energy; (b) establishes a financing framework to stimulate investment from public, private, and concessional sources to accelerate the phasing out of CFPPs; (c) set precedents for repurposing of decommissioned coal facilities and associated infrastructure; (d) supports affected employees and communities with economic regeneration and social plans; (e) addresses obstacles related to policies, regulations, and procurement in order to facilitate rapid expansion of RE by IPPs; and (f) promotes the development of necessary system investments (such as grid upgrades, energy storage, etc.) through public and private route, then the Philippines will accelerate its transition from coal to clean energy in managed, reliable, affordable, holistic, socially inclusive and gender-equal manner.

78. The IP is structured to highlight the road map for a low-carbon transformation for the Philippines' energy sector. Component 1 projects are intended to facilitate (a) the voluntary early retirement and/or repurposing of existing CFPPs, and (b) the development of assets needed for replacement of power with clean energy (such as RE, energy storage solution, etc.). Component 1 projects are targeting Mindanao CFPP as well as other private owned CFPPs. Component 2 projects focus on activities that will support governance and just transition. These include reskilling and upskilling of the relevant workforce to support RE development, development of national just transition approach, and strengthening of institutional and regulatory capacity.

79. Specific to how the IP will support economic regeneration, social protection plans, and livelihood support for affected workers and communities (with a special focus gender and disadvantaged groups), just transition principles are woven into every step of project assessment, design, and implementation. The IP outcomes will have implications on formal, informal, and contract job losses across CFPP value chain including coal mines, CFPPs, transport systems, as well as businesses engaged in the support chain. Further job losses could arise due to induced impacts on aggregated income in the economy, particularly because of reduced government revenue. Recognizing this, ADB and the World Bank are undertaking various assessments to understand the potential scale of these impacts examining direct, indirect, and induced impacts. The assessments will provide information regarding differentiated impacts across regions dependent on factors such as current poverty rate, unemployment rate, which will impact availability of new jobs. The assessments will further consider issues around the suitability of transition from fossil fuel-based employment to clean energy employment such as skills mismatch, geographical separation of opportunities and reskilling required. Induced social issues, such as incidence of gender-based violence will be overlaid on the results to highlight where further attention and detailed assessment is needed.

80. As the concepts presented in the IP are further developed, detailed situational assessments will be conducted, including on-the-ground data gathering and consultation, to inform a robust design and development of mitigation plans. These mitigation plans will need to consider creation of alternative quality employment opportunities, support for economic diversification e.g., support for MSMEs, and financing arrangements. These considerations will also be integrated into the development of a national just transition framework.

6.2 Integrated Approach to Monitoring, Evaluation, and Learning

81. The IP has been designed to deliver on the necessary outcomes to support the broader impact ambition for a sustainable, just, and affordable clean energy transition across the Philippines. In summary, through \$500 million in CIF–ACT funding, together with \$1,496 million in MDB cofinancing, \$55 million in contribution from the GOP and \$805 million in cofinancing, the IP aims to achieve the following:

- a. **Governance.** The adoption or amendment of up to 7 strategies, policies, regulations, standards, or codes.⁶⁰
- b. **People.** Up to 374 (i.e., 80% of) employees of CFPPs retired through IP projects with access to sustained income and up to 468 direct beneficiaries of social plans and economic regeneration activities, to be disaggregated by gender, and reflecting other social characteristics (age, disability status, formal vs. informal workers etc.) as well as documented information about the quality of the jobs (income, skilled/ non-skilled positions) whenever relevant and possible.⁶¹
- c. **Infrastructure.** Avoided GHG emissions of up to 33 million tons carbon dioxide equivalent (CO₂e) through the accelerated voluntary retirement of up to 900 MW of CFPP generation capacity, as well as up to 25 million tons of coal diversion and an increase of up to 1,500 MW of installed renewable energy capacity.⁶²

82. The Philippines' IP responds to CIF's integrated approach to results measurement, as presented within the ACT Integrated Results Framework (IRF) in Appendix 3. CIF's integrated approach combines essential monitoring and accountability functions with a holistic multilevel and multidimensional approach, including a complex systems orientation, and emergent learning opportunities. Within this integrated approach, measurement of program and project impacts are captured via the multiple dimensions of monitoring, evaluation, learning, gender, and other key crosscutting approaches, coalesced within the objective of delivering a nuanced and complete understanding of the program's progression, and thematic specificities, in delivering a complex and multifaceted program goal.

83. The left-side columns of the ACT IRF, tracking the key performance indicators of program and project performance, are captured within the Philippines IRF (Appendix 3), wherein the program's performance is tracked via targeted, core indicators defined within the ACT IRF, in response to the ACT Theory of Change and its constituent objectives. The right-side columns of the ACT IRFs, focused on evaluation of learning approaches (encompassing transformational change signals across dimensions, just transition studies, co-benefits/development impact evaluations, gender and social inclusion analytics, and other targeted evaluations and learning activities) are captured via CIF, country, and MDB-driven evaluations and studies responsive to the program's evidence needs and priorities, as outlined below. In sum, the approaches allow for a duality between systemized tracking and responsive research and evaluation, designed to complement each other, and leverage mixed methods approaches utilizing different tools, methods, and forms of evidence, but strategically combining them when applicable.

⁶⁰ Tracked by ACT Core Indicators 1 and 2.

⁶¹ Tracked by ACT Core Indicators 3 and 4.

⁶² Tracked by ACT Core Indicators 5, 6, 7, 8, 9 and 11.

84. The Philippines' IP is therefore also structured to outline the program's results chain—from program-level activities, outputs, outcomes, and impacts (based on the anticipated investment pipeline and the related activities to be funded within the program, the overall program design, and the theory of change) and incorporates elements related to (a) evaluation and learning, (b) transformational change, (c) gender and social inclusion, (d) just transition, (e) SDGs, and (f) development impacts/co-benefits in addition to the fundamental program results and corresponding indicators.

6.3 Monitoring and Reporting

85. **System-wide analysis.** The IP's Integrated Results Framework serves as a fundamental instrument that grounds the country program's high-level goal statement on measurable national indicators and targets, and thereafter links the program's theoretical objectives with the measurable outcome-level results anticipated via its constituent project pipeline. As the IP is developed collaboratively among the GOP, implementing MDB partners, and other stakeholders, the process of defining project objectives, and aggregating the related results via the IRF, constitutes a consistent and system-wide approach on the coherence of and between interventions, and on accountability between proposed goal statements and pragmatic results estimations.

86. **Anticipated program impacts.** The Philippines IP currently expects to deliver on 9 of the 11 core objectives of the ACT Investment Program, and the country's IRF therefore tracks core indicators as relate to each of these outcomes, with the expected target values collating the fractional outcomes expected from each of the seven individual projects within the program pipeline. Each target value delineates the share of results anticipated from each discrete project, allowing for a differentiated analysis of the varying levels of impacts, vis-à-vis investment volumes and targeted approaches. As such, the IRF will be responsive to any changing dynamics within individual projects, and under or over achievement of program-level results will allow for learning and adaptation based on challenging or opportune investment environments.

87. **Protocols for tracking.** The monitoring and reporting of results will be a collaborative process among all stakeholders. Country focal points and implementing agencies, with support from the CIF AU Monitoring and Reporting team, will lead on tracking the country IP impact indicators set out at IP approval. Implementing MDBs will monitor, and report annually to the CIF AU, all outcome-level core indicators relevant to each approved project, in accordance with the methodologies, reporting requirements and timelines set out within the ACT IRF, and within the forthcoming ACT M&R Toolkit.⁶³ As such, MDBs will be responsible for incorporating these outcome-level indicators into the monitoring and reporting frameworks and mechanisms for each implemented project, alongside any optional outcome indicators and at least one co-indicator per project, also in accordance with the ACT IRF and ACT M&R Toolkit. Country IP M&R workshops, anticipated at inception, midterm, and IP-conclusions along with any, as needed, interim country M&R workshops, will allow for multi-stakeholder cross-sectoral consensus on indicator progress, targets, methodologies, and related gaps, lessons, or enhancements, in accordance with the guidance set out by the CIF AU for the ACT program.

88. **Proposed approaches for tracking and evaluating transformational change, just transition, and inclusivity aspects of the investment plan.** The IP and associated activities present an important opportunity for learning through an evaluative lens on key themes and goals

⁶³ The ACT M&R Toolkit translates the ACT IRF into a practical and detailed guide which sets out definitions of indicators, measuring methods/approaches and frequency, roles, and responsibilities etc.

related to transformational change and just transition. As per the right-hand side of the IRF, in addition to the MDBs own evaluation processes through their independent evaluation offices or other efforts, the MDB and country counterparts will participate in evaluation activities of the CIF. This includes independent program level mid and end-term evaluations and evaluations on key themes such as transformational change and just transition. Evaluative insights could also relate to diagnostic, design, implementation, economic value, and synthesis evaluations of programs and projects. Any evaluation effort will not replicate existing country evaluation systems but will aim to reflect them as part of the overall approach, drawing data from all existing, credible sources.

89. Any evaluation on transformational change will use the dimensions of transformational change as identified through the transformational change learning partnership and documented in the program design documents and evaluation guidance provided. Similarly, any evaluation of just transition will consider the CIF just transition framework and its associated dimensions. The guidance and questions provided in the ACT design document related to just transition, transformational change and gender will be used to structure both formative and summative evaluative processes. Key questions to consider include:

- a. Who is involved and empowered during transition processes? (Procedural Justice)
- b. Who benefits and who loses in transition processes? (Distributional Justice)
- c. What is needed, what is planned and are they aligned? (Relevance)
- d. What systems need to be changed and how? (Systemic Change)
- e. What is the relationship between urgency and complexity and how is this being managed? (Speed)
- f. What scaling is required/ was achieved? (Scale)
- g. What capacity is being built to achieve sustainable development pathways? (Adaptive Sustainability)

90. A variety of evaluation methodologies may be deployed with a particular emphasis on enhancing participation in evaluation and learning processes as well as ensuring the rapid use of information for learning and course correction where required.⁶⁴

⁶⁴ The ACT program's monitoring, evaluation and learning framework is also supplemented and supported by rigorous, independent research via the CIF-DIME Research Program. The program encompasses, among others, bespoke scientific and data-driven research, modelling, and randomized control trial-based analyses of the program's impacts and effectiveness. DIME, and its team of economists and researchers, offers a variety of different research tools, depending on the topic, context, and partnering nation: from, at the front end, computable-general-equilibrium (CGE) macroeconomic modelling and original microdata collection to, on the ground, randomized-controlled trials that leverage local DIME team members providing close, hands-on field support. At the early and IP stages, the CIF-DIME program provides research capacities to establish baselines, and fill evidence gaps and test lines of impact within the IP's theory of change. At advanced stages of the pipeline, the program can be utilized to conduct diagnostics and establish comparative lines of inquiry that test the effectiveness of varying modes of policy and programming. At project deployment stage, DIME's economists and research teams will deploy rigorous impact evaluations, working closely with project teams on the ground to conduct robust testing and learning, and provide the project, the country and the ACT program with data inputs and real-time analytics that can raise the effectiveness and quality of implementation.

APPENDICES

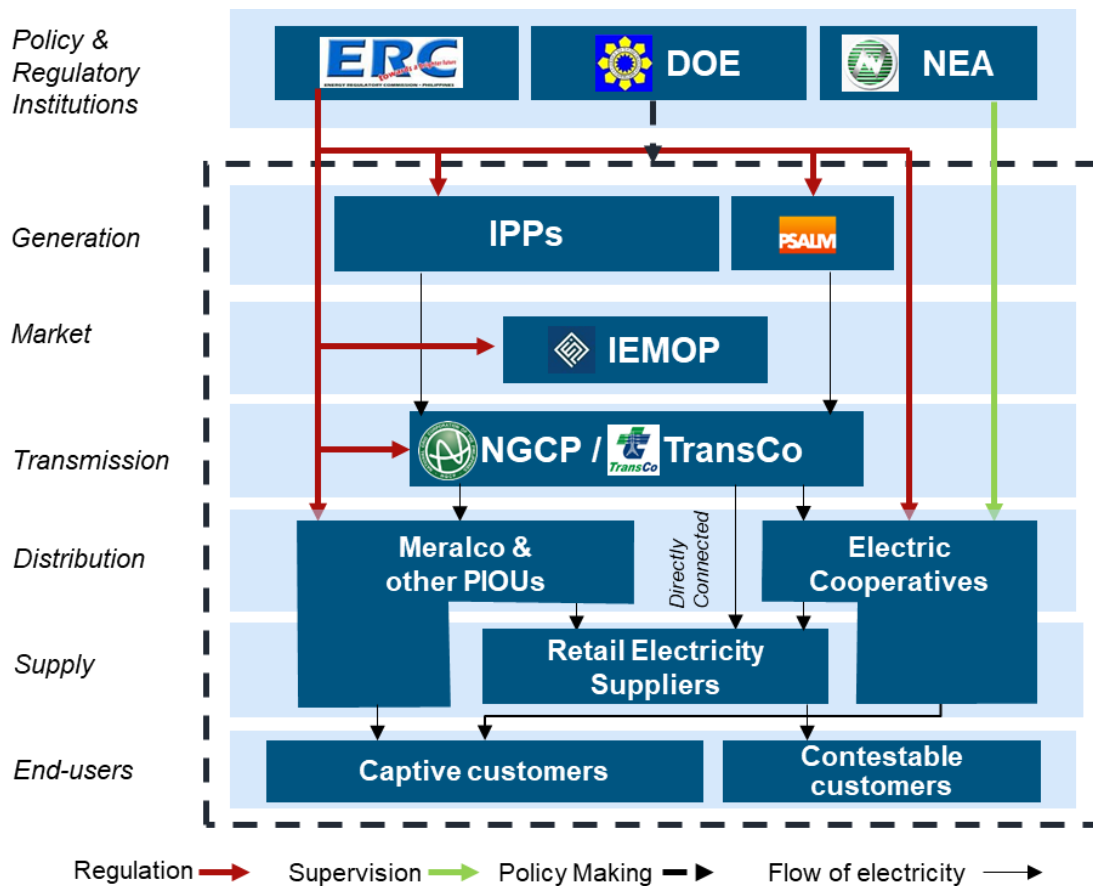
APPENDIX 1: ELECTRICITY SECTOR STRUCTURE IN THE PHILIPPINES

The liberalization of the electricity sector started in 2001 through introduction of EPIRA which allowed for the liberalization and de-monopolization of electricity generation, transmission, and distribution.

Today, Philippines has one of the most deregulated and privatized electricity sector in Southeast Asia, with private sector entities owning and operating most of country's power generation, transmission and distribution assets.

Figure 13 illustrates the current structure of the electricity sector in the Philippines.

Figure 12: Electricity Sector Structure in the Philippines (excluding off-grid)



ERC = Energy Regulatory Commission, DOE = Department of Energy, IEMOP = Independent Electricity Market Operator of the Philippines, IPP = independent power producer, NEA = National Electrification Administration, NGCP = National Grid Corporation of the Philippines, PIOU = private investor-owned utility, PSALM = Power Sector Assets and Liabilities Management Corporation, TransCo = National Transmission Corporation.

Note: This diagram represents the structure for the grid-connected portion of the Philippine power sector.

Source: Department of Energy.

Government Institutions

- **Department of Energy.** The Department of Energy (DOE) is the apex government agency with overall responsibility for overseeing activities within the electricity sector, developing policy, and supervising the Electric Power Industry Reform Act (EPIRA)-driven reform process. Its role in energy planning and policy notably also includes the periodic formulation of sector plans. The DOE reports to the Office of the President which ensures that plans for the energy sector align with government objectives.
- **Energy Regulatory Commission.** The Energy Regulatory Commission (ERC) was created as an independent, quasi-judicial, and regulatory body under the EPIRA to promote competition, encourage market development, ensure customer choice, and penalize abuse of market power. The ERC is responsible for determining wheeling rates for transmission and distribution, approval of bilateral power supply agreements in the regulated market of electric cooperatives (ECs) and distribution utilities (DUs), ruling on Ancillary Service Procurement Agreements, and granting licenses covering generation, and retail activities.
- **Independent Electricity Market Operator of the Philippines.** The Independent Electricity Market Operator of the Philippines (IEMOP) is an independent and nonprofit institution responsible for managing the platform for wholesale electricity trading in the Wholesale Electricity Spot Market (WESM) in real-time and is set to extend that role to the planned ancillary services market.

State-Owned Enterprises

- **National Electrification Administration.** The National Electrification Administration (NEA) is a government-owned corporation responsible for promoting full electrification in the Philippines. EPIRA renewed the government's mandate for the NEA to manage rural electrification through the regulation of and assistance to ECs. The NEA's main responsibilities include:
 - Preparing ECs to operate and compete under a deregulated electricity market;
 - Acting as a guarantor for EC purchases of electricity in the WESM;
 - Strengthening the technical capability and financial viability of ECs;
 - Acting as the administrator of government grants for extensions of distribution lines in non-electrified barangays; and
 - Assisting ECs in preparing and integrating their distribution development plans, including rehabilitation, upgrades, expansion of their distribution systems, and acquisitions of new assets such as sub-transmission lines.
- **National Power Corporation.** The National Power Corporation (NPC) is a government-owned and controlled corporation that owned and operated all Philippines generation and transmission assets prior to the EPIRA. Following EPIRA, NPC's generation, and transmission have been substantially privatized, and led to the formation of National Transmission Corporation (TransCo) and Power Sector Assets and Liabilities Management Corporation (PSALM). Notwithstanding, NPC continues to own legacy generation assets and associated delivery facilities in off-grid areas.
- **National Transmission Corporation.** TransCo, established under EPIRA, is a government-

owned organization responsible for holding legal ownership of the Philippine" transmission assets. However, the operation of the grid was privatized and handed over to the National Grid Corporation of the Philippines (NGCP) under a 25-year concession agreement.

- **Power Sector Assets and Liabilities Management Corporation.** PSALM is a government-owned entity mandated with privatizing the remaining NPC generation assets and liquidating all NPC's financial obligations. PSALM also administers and privatizes BOT agreements of generation assets where there is government ownership. Furthermore, PSALM administers the universal charge that includes charges approved by the ERC for paying off and reducing stranded NPC debt, and to provide for NPC's missionary electrification efforts.
- **Philippine Competition Commission.** The Philippine Competition Commission (PCC) is an independent quasi-judicial body mandated to implement the national competition policy and enforce the Philippine Competition Act, which serves as the primary law in the Philippines for promoting and protecting market competition.

Private Sector Entities

- **National Grid Corporation of the Philippines.** In 2008, the 25-year concession of the transmission network franchise was awarded to the NGCP in which the State Grid Corporation of China has a 40% stake. The NGCP is regulated by the ERC and its role includes the procurement of ancillary services necessary to maintain the stability and security of the grid.
- **Distribution Utilities.** The distribution sector comprises private investor-owned utilities (PIOUs) and cooperatively owned ECs. The most prominent PIOUs are in major urban centers. Most notable PIOUs include Manila Electric Company in Metro Manila, Visayas Electric Company in Cebu, and Davao Light & Power Company Inc. in Davao. In 2020, these three PIOUs accounted for up 48.0% of electricity sales in the Philippines. ECs, by contrast, are nonprofit and member-owned organizations that typically serve smaller urban and rural areas. ECs are cooperatively owned by members of the franchise.
- **Retail Electricity Suppliers.** Since the introduction of retail competition and open access in 2013, the regulated distribution utilities have been complemented by unregulated retailers classified as retail electricity suppliers and local retail electricity suppliers. These are smaller entities that operate only in supply of electricity unlike ECs and PIOUs, which also operate in distribution as well and are regulated.
- **Directly Connected Customers.** Directly connected customers are supplied from the transmission network, and they are all eligible for contestability.

APPENDIX 2: ASSESSMENT OF THE PHILIPPINES' CAPACITY FOR COAL TRANSITION

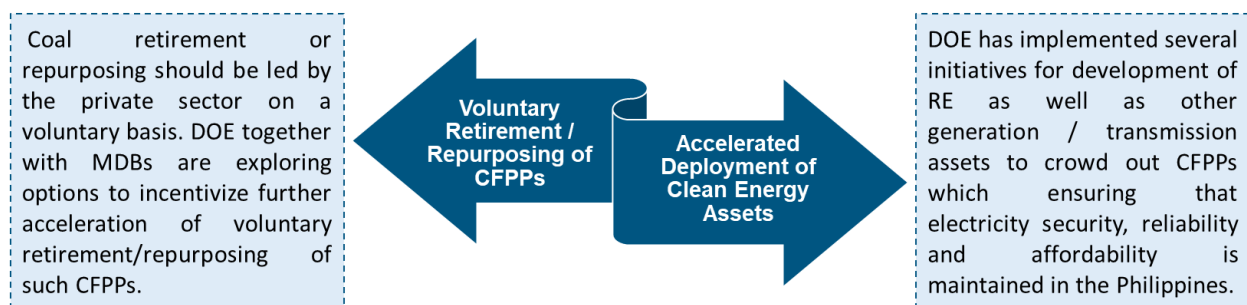
The Department of Energy (DOE) has already issued a moratorium on the development of greenfield coal-fired power plants (CFPPs) from October 2020 onward. The Government of the Philippines (GOP) is also exploring options for accelerating the retirement and/or repurposing of the 200-megawatt (MW) Mindanao CFPP and subsequent replacement of lost power through the development of clean assets.

As the power sector in the Philippines is largely privatized, the coal-to-clean transition would need to be led by the private sector. DOE has implemented several initiatives for the development of renewable energy (RE) (as highlighted in Section 2.6.1 of the investment plan [IP]) as well as other generation and/or transmission assets to crowd out CFPPs while ensuring that electricity security, reliability, and affordability are maintained in the Philippines.

In the Philippine Energy Plan (PEP) 2023–2050, DOE has considered a technical life of 40 years for CFPPs and is exploring ways to encourage private sector CFPP owners to cease operations or repurpose the plant by this time, even though they are expected to be operational for much longer periods. This scenario in the PEP assumes CFPP retirement by the private sector on a voluntary basis. DOE, together with multilateral development banks, are exploring options to incentivize further acceleration of voluntary retirement and/or repurposing of such CFPPs.

Based on the scenario analysis outlined in the PEP 2023–2050, it is projected that voluntary early retirement or repurposing of CFPP capacity in the range of 3.6 GW to 4.8 GW will be made by 2050. This represents approximately 30% to 40% of the existing coal capacity. The variation in CFPP capacity retirement or repurposing can be attributed to the two Clean Energy Scenarios (CESS) outlined in the PEP, wherein the assumptions regarding offshore wind deployment diverge. CES 1, which envisions the introduction of 19 GW of offshore wind by 2050, is expected to result in fewer CFPP retirements when compared to CES 2, which assumes a 50 GW offshore wind deployment.

Figure 13: Coal-to-Clean Transition Strategy



CFPP = coal-fired power plant, DOE = Department of Energy, MDB = multilateral development bank.

Source: Department of Energy.

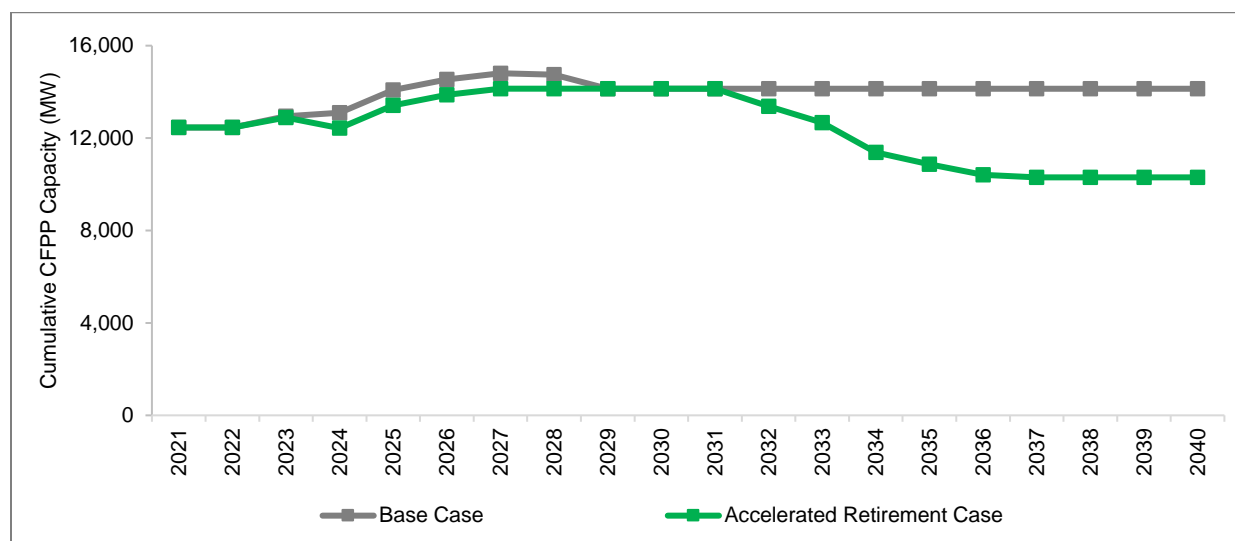
Modeling Scenario Analysis for Coal-to-Clean Transition

As part of Energy Transition Mechanism (ETM) feasibility study conducted by the Asian Development Bank (ADB), a modeling scenario analysis was conducted on illustrative basis to evaluate the impact of adopting coal to clean energy transition strategy in the Philippines.

The modeling scenario analysis compares the following two scenarios and looks at the impact between 2021–2040:

- **Base case.** This scenario assumes all the currently planned and committed power plants (including coal) are installed in the year they are planned for and remain operational throughout their technical lifetime. For CFPPs, a technical life of 45 years was assumed. This scenario is used as a baseline to compare against the accelerated retirement scenario.
- **Accelerated retirement case.** In this scenario, 30% of the total grid-connected CFPP capacity as of 2022 was retired at least 4–5 years⁶⁵ ahead of their scheduled retirement date (assuming technical life of 40 years). The other CFPPs are retired at the end of their technical life of 40 years. The retirement profile assumes that retirements start in 2032 and are completed by 2037 with a total of 3.8 gigawatts (GW) retired.

Figure 14: Retirement Profile – Base Case vs. Accelerated Retirement Case



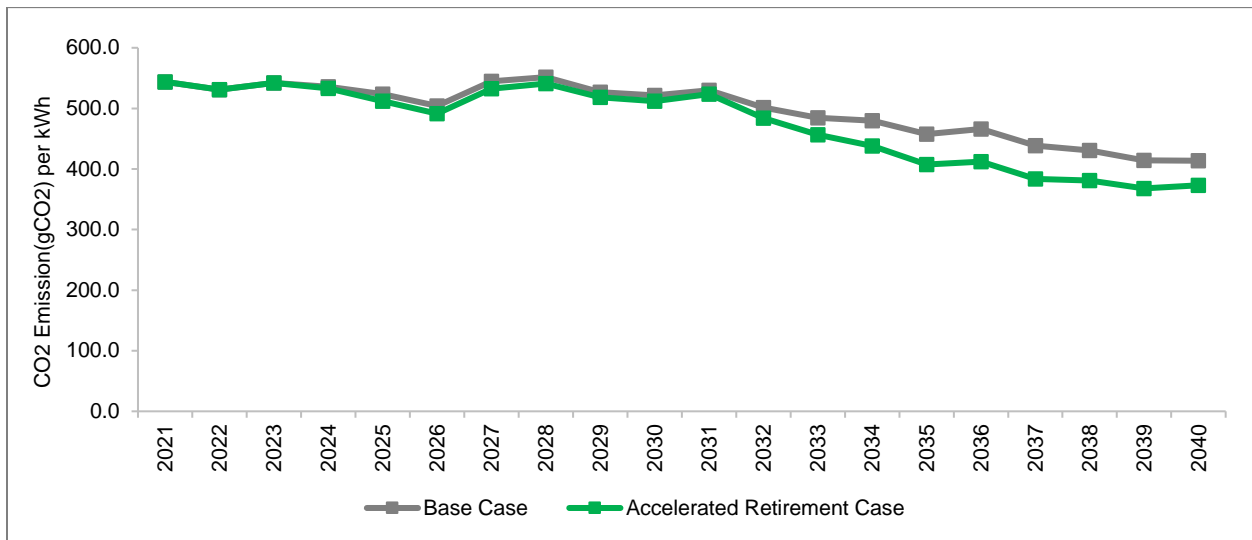
CFPP = coal-fired power plant, MW = megawatt.

Source: Mott Macdonald. Energy Transition Mechanism (ETM) feasibility study for the Philippines.

The timing of independent power producer (IPP) retirements (and ultimately the selection of CFPPs to retire) will be based on commercial negotiations. Nevertheless, according to the modeling scenario analysis, a retirement road map similar to the above, combined with a replacement of capacity with clean energy could help to abate close to 130 metric tons of carbon dioxide (Mt CO₂) by 2040.

⁶⁵ Few CFPPs are retired more than 10 years before their scheduled retirement date to ensure that 30% of total coal capacity (as of 2022) is retired before 2040. These plants were selected using the multi-criteria analysis approach, which assigns each CFPP a score according to several criteria covering grid security, plant technical and operational characteristics, commercial and financial, environmental, and just transition considerations.

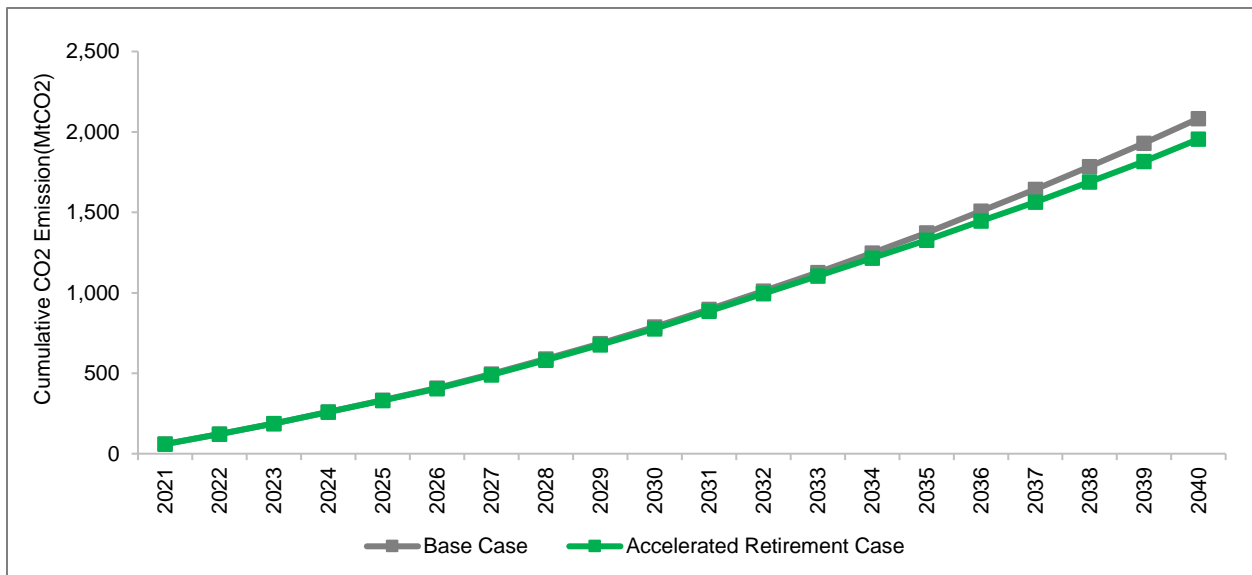
Figure 15: Carbon Dioxide Emissions per Kilowatt-Hour – Base Case vs. Accelerated Retirement Case



CO₂ = carbon dioxide, g = gram, kWh = kilowatt-hour.

Source: Mott Macdonald. Energy Transition Mechanism (ETM) feasibility study for the Philippines.

Figure 16: Cumulative Carbon Dioxide Emissions – Base Case vs. Accelerated Retirement Case

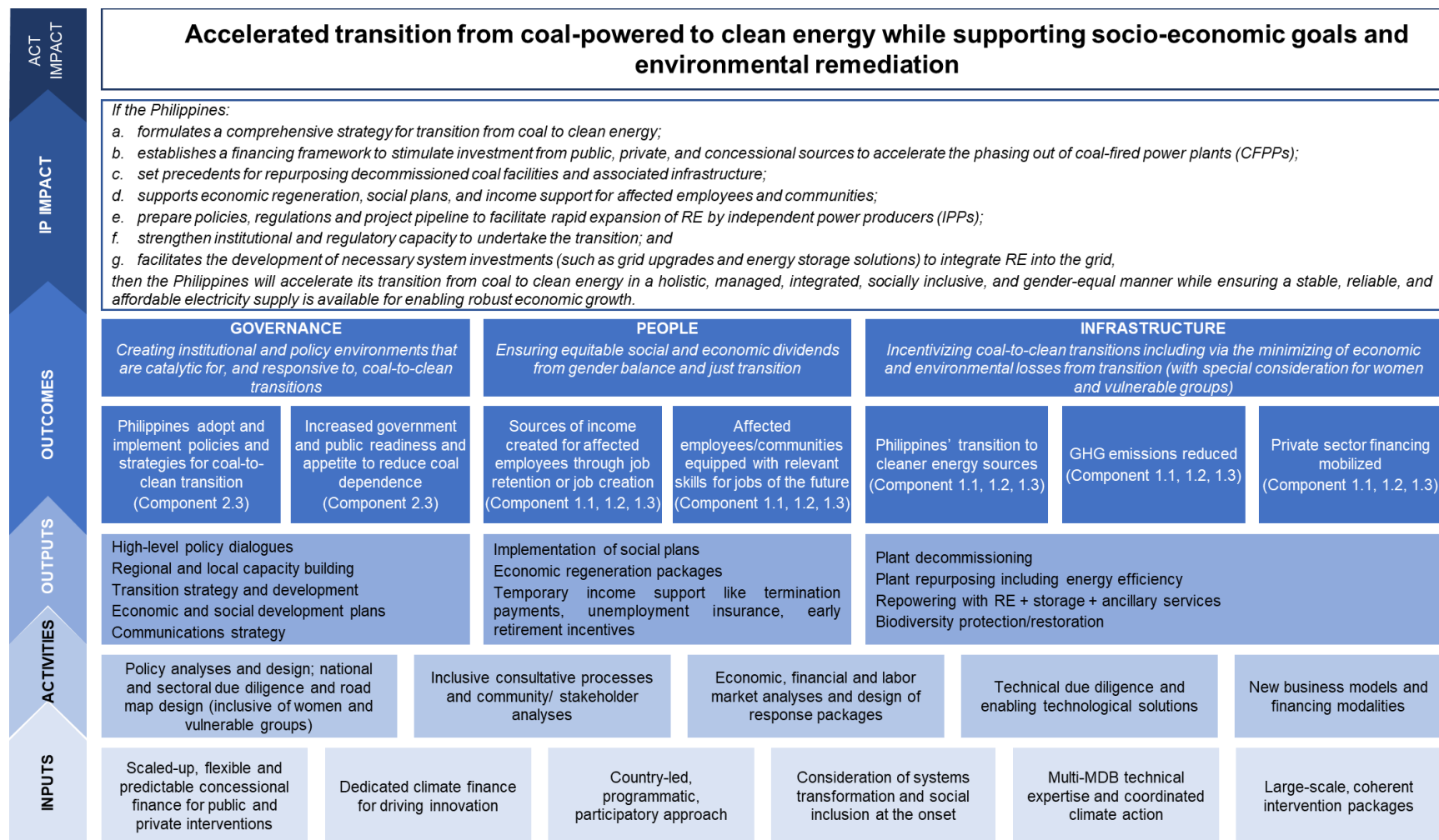


CO₂ = carbon dioxide, Mt = metric ton.

Source: Mott Macdonald. Energy Transition Mechanism (ETM) feasibility study for the Philippines.

APPENDIX 3: THEORY OF CHANGE AND INTEGRATED RESULTS FRAMEWORK

Figure 17: Philippines – Theory of Change



ACCELERATING COAL TRANSITION IMPACT

Accelerate transition from coal-powered to clean energy while supporting socioeconomic goals and environmental remediation.

Accelerating Coal Transition Program Theory of Change: If the Climate Investment Fund (CIF) addresses funding gaps related to the successful implementation of country-level strategies and associated kick-start projects; builds support at the local and regional levels to reconsider the development of new coal plants; and supports policy and investment activity in economic regeneration, social plans and income support for affected employees and communities, then national governments, public sector utilities, and private sector operators will act to accelerate the retirement of existing coal assets and their replacement with new sources of renewable energy (RE) while ensuring a holistic, integrated, socially inclusive and gender-equal just transition away from coal.

PHILIPPINES ACCELERATING COAL TRANSITION INVESTMENT PLAN IMPACT

Accelerating the transition from coal to RE in a reliable, affordable, holistic, managed, integrated, socially inclusive, and gender-equal manner.

Philippines Investment Plan Theory of Change:

If the Philippines:

- a. formulates a comprehensive strategy for transition from coal to clean energy;
- b. establishes a financing framework to stimulate investment from public, private, and concessional sources to accelerate the phasing out of coal-fired power plants (CFPPs);
- c. set precedents for repurposing decommissioned coal facilities and associated infrastructure;
- d. supports economic regeneration, social plans, and income support for affected employees and communities;
- e. prepares policies, regulations and project pipeline to facilitate rapid expansion of RE by independent power producers (IPPs);
- f. strengthens institutional and regulatory capacity to undertake the transition; and
- g. facilitates the development of necessary system investments (such as grid upgrades and energy storage solutions) to integrate RE into the grid,

then the Philippines will accelerate its transition from coal to clean energy in a holistic, managed, integrated, socially inclusive, and gender-equal manner while ensuring a stable, reliable, and affordable electricity supply is available for enabling robust economic growth.

MONITORING APPROACH

EVALUATION AND LEARNING APPROACH

RESULT STATEMENT	INDICATORS	BASELINE (Baseline Date)	TARGET (Target Date)	MEANS OF VERIFICATION	NOTES	KEY AREAS
------------------	------------	--------------------------	----------------------	-----------------------	-------	-----------

PHILIPPINES INVESTMENT PLAN-LEVEL IMPACTS

Accelerating the transition from coal to RE in a reliable, affordable, holistic, managed, integrated, socially inclusive and gender-equal manner.	Impact Proxies: Share of RE in primary energy supply (%) Share of RE for total installed capacity (%)	33% ¹ (2022)	38%-41% ² (2030)	DOE, Philippines Energy Statistics	Investment plan (IP)-level impacts focus on alignment with pre-existing nationally determined contributions (NDCs), national development priorities, and available statistics at the Investment Plan and/or country level. Share of RE may consider both the share of non-conventional renewable energy (NCRE) in total national installed capacity	Signals of transformational change: Signals of transformational change at the program level might focus on more narrowly bounded aspects of energy systems transformation than in the section above (i.e., CIF-level impact). They might cover lower levels of systems transformation and be more closely tied to individual Accelerating Coal Transition (ACT) Investments Plans and/or project-level impacts. Specific definitions and methodologies are to be determined.
---	--	----------------------------	--------------------------------	------------------------------------	--	---

					(%) and the share of NCRE in total national consumption over a 12-month reporting period (%)	Gender and just transition elements: The program impact level allows space for further evaluations, assessments, and other approaches to take place as the program evolves in these areas. These activities may be tailored to specific recipient countries or applied more broadly across the program.
PILLAR 1: GOVERNANCE						
A. Philippines adopts and implements policies and strategies for coal-to-clean transition	ACT CORE 1 Policies: Number of policies, regulations, codes, or standards that have been amended or adopted (#) • Disaggregation (as related to energy) • Disaggregation (as related to just transitions) • Disaggregation (as related to gender)	1 2022	6 (2030) 4 1 1	Multilateral development bank (MDB) project data / country data	Projects with no policy component should report a target of 0. Given the role of national and subnational entities in coal transition, policies could be at the national, subnational, or local level depending on the nature of the activities. Policies, regulations, codes, or standards might include policy objectives covering, but not limited to: energy and mining sectors, the financial sector; just transition, social protection, and jobs; vulnerable groups- and gender- responsive protections and support as related to transition; and the environment (reclamation).	Changes in policies, plans, and institutional capabilities may also be incorporated in analyses of signals of transformational change, which contribute toward the fundamental systems change described above. For example, specific policy analysis might help support the overall understanding of coherence across international and national policies (i.e., relevance) and linkages between national policy and institutional capacity (i.e., scale). CIF's targeted evaluations and/or sector studies to fill strategic knowledge gaps: Moving down the results chain, the monitoring function becomes increasingly important to capture program outcomes and outputs. Evaluation and learning function will complement core indicators by filling strategic evidence and knowledge gaps. Evaluation and learning activities will be selected based on overall stakeholder demand, evidence gaps, and cross-learning opportunities.
B. Increased government and public readiness and appetite	ACT CORE 2 Readiness: Coal transition strategies finalized (#)	0 2022	1 (2030)	MDB project data	The indicator would track strategies, action plans, road maps, etc. committed to by stakeholders and covering, but not limited to, strategies as	

¹ DOE. Philippines Power Statistics. [Philippine Power Statistic | Department of Energy Philippines \(doe.gov.ph\)](https://www.doe.gov.ph/philippine-power-statistic)

² DOE. Philippine Energy Plan 2023–2050.

to reduce coal dependence					related to: energy and mining; gender-responsive and socially inclusive strategies to mitigate negative transition impacts and ensure that women and men, and vulnerable groups equally benefit from opportunities (e.g., jobs); and just transition, social protection, and jobs; environment (reclamation).	
Project Components 2.3						

PILLAR 2: PEOPLE

C. Sources of income created for affected employees through job retention or job creation	ACT CORE 3 Income security for employees of subset industries: Number and percentage of employees of retired coal plants that have access to sustained income (#,%)	0 2022	374, 80% (2030)	MDB project financial data	This indicator feeds into CIF Impact 3 (Beneficiaries). Sub-indicators <ul style="list-style-type: none"> • Coal sector employees retained or redeployed to new jobs (#, %) • Non-retained and non-redeployed coal sector employees that receive income support (#, %) For non-retained employees receiving income support, the following instruments may be considered: severance or other forms of termination payments; unemployment insurance; social assistance payments; early retirement incentives; other. Disaggregation: <ul style="list-style-type: none"> • by gender (%) • vulnerable groups (%) • permanent vs. temporary / construction jobs (#) 	Quality and distribution of jobs: Through both just transition and gender-responsive approaches, further evaluative and learning-oriented analyses may center on the types of jobs created (and lost), and which subpopulations are gaining (and losing) employment opportunities. For example, this might include generating evidence on decent jobs created and plans for addressing jobs lost through skills development and economic diversification activities. Alternatively, it might include analyses of women's access to medium- and high skilled green jobs; science, technology, engineering and mathematics (STEM)-education and vocational training; and school-to-work transitions. Modeling: Indirect job creation, such as induced employment along the supply chain, may be estimated using modeling techniques alongside projects' reporting of direct job creation. Gender-responsive aspects can be studied in more detail through targeted research, evaluations, and/or case studies. These will seek to understand the program's impacts in
---	---	-----------	--------------------	----------------------------	--	--

					<ul style="list-style-type: none"> • types of jobs <p>Project Components 1.1, 1.2 and 1.3</p> <p>Key Assumptions: Following assumptions are used for calculating Target:</p> <ul style="list-style-type: none"> • There are about 0.52 workers per megawatt (MW) capacity on average in the Philippines. • All the workers will get affected from early retirement of the CFPP and 80% of them are ultimately retrained and provided with sustained income opportunities. • 3–4 CFPP facilities with aggregate capacity of 900 MW are targeted under Components 1.1, 1.2 and 1.3. 	<p>reducing gender imbalances and expanding inclusion, including interventions’ relevance and access to the female labor force and the inclusion and viability of female-owned enterprises in economic regeneration programs, driven by potential activities such as:</p> <ul style="list-style-type: none"> • <u>Coal plant or coal mine retirement and/or repurposing phase:</u> Gender and social policy and strategy preparedness assessment; including mapping of: (i) institutional linkages through gender focal points in line ministries (including in Social Protection and Labor, and Education ministries, as well as Environment, and Energy); (ii) expected poverty impacts of the transition, including social and gender-based care burdens for workers affected directly and indirectly by the energy transition; and (iii) policy mandates and measures to ensure gender equality outcomes in skill development and workforce transition. • <u>Post-coal regional transformation phase:</u> Social protection assessment of readiness and completeness of short and long-term social assistance programs, active labor market programs, and education and reskilling programs targeting jobs of the future including gender assessments of gaps between women and men in education, skills, employment, and participation rates in new or similar jobs-related programs; and measures to reduce gender imbalances in impact of proposed interventions. <p>Just transition-framed analyses:</p> <ul style="list-style-type: none"> • <u>Procedural justice:</u> may examine the enhancement of social inclusion processes
D. Equip affected employees and communities with relevant skills for jobs of the future	<p>ACT CORE 4 Social Plans and Economic Regeneration Packages: Number of direct beneficiaries of implemented social plans and economic regeneration activities (#)</p>	0 2022	468 (2030)	MDB project data	<p>For social plans, this will measure beneficiaries of implemented plans, including labor retrenchment packages, reskilling and/or retraining packages, and gender and local communities action plans.</p> <p>For economic regeneration, this will measure beneficiaries of programs and packages operationalized that create new sources of income for participants of sunset industries or entities, including regeneration stimulus packages.</p> <p>Disaggregation:</p> <ul style="list-style-type: none"> • by gender (%) 	

					<ul style="list-style-type: none"> vulnerable groups (%) types of jobs <p>Project Components 1.1, 1.2 and 1.3</p> <p>Key Assumptions: Following assumptions are used for calculating target:</p> <ul style="list-style-type: none"> There are about 0.52 workers per MW capacity on average in the Philippines. All the workers are direct beneficiaries of social plans and economic regeneration packages. 3–4 CFPP facilities with aggregate capacity of 900 MW are targeted under Components 1.1, 1.2 and 1.3. 	<p>and procedures, such as stakeholder engagement at local and national levels, the extent to which vulnerable groups in impacted areas have been represented, gender inclusion, and the scope of social partners involved, i.e., government, labor, business, civil society, race, etc.</p> <ul style="list-style-type: none"> <u>Distributional impacts</u>: may also be further examined along other evaluative lines or with additional focus on specific subpopulations, such as ethnic, religious, and racial minorities, female-headed households, Indigenous People and local communities, migrants, youth, and persons with disabilities.
PILLAR 3: INFRASTRUCTURE						
E. Reduce GHG emissions	<p>ACT CORE 5 (= CIF 1)</p> <p>Mitigation: GHG emissions reduced or avoided (metric tons of carbon dioxide equivalent [MtCO₂e])</p>	0 2022 (reference scenario to be established per project)	33	Annual and lifetime reporting by projects	<p>This indicator feeds into CIF Impact 1 (Mitigation) and should be reported as direct vs. indirect reductions (per MDB-approved methodologies) with evidence provided.</p> <p>Emission reductions will be calculated by subtracting projected lifetime emissions of a CIF-financed intervention from the projected lifetime emissions of the business-as-usual program or project that would have otherwise been pursued.</p> <p>Project Components 1.1, 1.2 and 1.3</p>	<p>MDBs are encouraged to undertake “whole of energy systems” analyses as baselines during the investment plans and project appraisal process and to fully incorporate monitoring, evaluation, and learning (MEL) aspects into such analyses. Integrated, systems-levels analyses can be used to build a theoretical model and reference scenario for how interventions will affect multiple results areas: RE installation, coal retirement or abatement, asset reclamation and reuse, landscapes restoration, etc. Both estimated and real operational data can also then be consolidated effectively to report across these multiple indicators.</p>

					<p>Key Assumptions: Following assumptions are used for calculating Target:</p> <ul style="list-style-type: none"> • Target CFPPs Capacity to be retired under IP projects: 900 MW • Target early retirement period: 9 years • Target RE Capacity to be developed under IP projects (for purpose of replacing power): 1,500 MW • Average utilization factor of target CFPPs: 65% • Average utilization factor of RE: 25% • Average emission factor for Target CFPPs: 0.97 t-CO₂/MWh • Average grid emission factor: 0.7 t-CO₂/MWh 	
F. Mobilize private sector financing	<p>ACT CORE 6 (= CIF 4). Cofinance: Volume of cofinance leveraged (US\$)</p> <p>Disaggregation: Volume of cofinance leveraged, MDB (US\$)</p> <p>Disaggregation: Volume of cofinance</p>	<p>0 2022</p> <p>0 2022</p> <p>0 2022</p>	<p>2,306 (2030)</p> <p>1,746 (2030)</p> <p>805 (2030)</p>	MDB project financial data	<p>Total of non-CIF resources leveraged in ACT projects. Reporting on this indicator feeds directly into CIF Impact 4 (Cofinance).</p> <p>Disaggregation: Source of cofinancing (MDB, government, private sector, bilateral, and other)</p>	

	<p>leveraged, Commercial (US\$)</p> <p>Disaggregation: Volume of cofinance leveraged, Bilateral (US\$)</p> <p>Disaggregation: Volume of cofinance leveraged, Government (US\$)</p>	<p>0 2022</p> <p>0 2022</p>	<p>0 (2030)</p> <p>25 (2030)</p>		
G. Cleaner Energy Sources	<p>ACT CORE 7 Plant decommissioning: Capacity of existing coal power generation assets accelerated for retirement (MW)</p>	<p>0 2022</p>	<p>900 (2027)</p>	<p>MDB project financial data</p>	<p>Existing capacity of coal-based generation that was retired ahead of life of asset due to replacement via operationalized NCRE capacity (i.e., solar and wind energy).</p> <p>Project Components 1.1, 1.2 and 1.3</p> <p>Key Assumptions: Following assumptions are used for calculating target:</p> <ul style="list-style-type: none"> • 3–4 CFPP facilities with aggregate capacity of 900 MW (with assumed capacity of 200-300 MW each) are targeted under Components 1.1, 1.2 and 1.3 (so total capacity targeted will be 900 MW). <p>Note: Target indicates capacity committed for early retirement by the target year.</p>

<p>ACT CORE 8 Repowering: Installed capacity of RE (MW)</p>	<p>0 2022</p>	<p>1,500 (2030)</p>	<p>MDB project financial data</p>	<p>NCRE capacity (i.e., solar and wind energy) operationalized as a result of ACT interventions</p> <p>Disaggregation:</p> <ul style="list-style-type: none"> • Renewable energy type (solar, wind, etc.) • Grid-connected vs. off-grid/distributed energy supply <p>Project Components 1.1, 1.2 and 1.3</p>	
<p>ACT CORE 9 Coal Abatement: Amount of coal diverted (metric tons [MT])</p>	<p>0 2022</p>	<p>25 (2027)</p>	<p>MDB project financial data</p>	<p>The measure can span the entire architecture of the coal industry, including but not limited to power plants, industrial companies, district heating systems, transport companies and residential users.</p> <p>Project Components 1.1, 1.2 and 1.3</p> <p>Key Assumptions: Following assumptions are used for calculating Target:</p> <ul style="list-style-type: none"> • 3-4 CFPP facilities with aggregate capacity of 900 MW are targeted under Components 1.1, 1.2 and 1.3. • Average utilization factor of target: 65% • Target early retirement period: 9 years • Plant Heat Rate: British thermal units (BTU) 9,700/kilowatt-hour (kWh) 	

					<ul style="list-style-type: none"> Coal Calorific Value: kilocalories (kCal) 4,500/kilogram (kg) <p>Note: Target indicates coal abated from the capacity committed for early retirement by the target year.</p>	
H. Reclaim land and other infrastructure	<p>ACT CORE 10 Plant closure, repurposing: Annual energy savings (GWh/yr)</p>	0	0	MDB project financial data	<p>A measure of increased energy efficiency because of ACT interventions that include energy savings objectives.</p> <p>Note: The proposed projects target to close or repurpose the plants and do not have energy efficiency components.</p>	
	<p>ACT CORE 11 Mine closure, reclamation: Mine area reclaimed and reforested/restored (Ha)</p>	0	0	MDB project financial data	<p>Including:</p> <ul style="list-style-type: none"> reforestation and afforestation restoring the quality of soils and ecosystems to pre-mining level 	
MONITORING APPROACH						EVALUATION AND LEARNING APPROACH
RESULT STATEMENT	INDICATORS	BASELINE (Baseline Date)	TARGET (Target Date)	MEANS OF VERIFICATION	NOTES	KEY AREAS
PHILIPPINES INVESTMENT PLAN-LEVEL CO-BENEFITS						
I. Social, Economic, and Environmental Development Co-Benefits	<p>CO-BENEFIT 1 Pollutants</p> <p>Atmospheric Pollution: Decrease in PM2.5 concentration</p> <p>Terrestrial Pollution:</p>	TBD		Global satellite data or related	<p>MDBs will only need to report on one co-benefit indicator per ACT project and can select among a range of options or propose another co-benefit.</p> <p>This measures reductions in emissions of air pollutants from energy and related activities, including electricity production and transportation, as well as</p>	

<p>Reduction in volume of contaminants discharged</p> <p>Health Benefits Value of avoided health costs due to reductions in pollutants (US\$)</p>	TBD		<p>Project appraisal data</p> <p>National health data</p>	<p>reducing contaminant discharges in liquid effluents from energy systems.</p>	
<p>CO-BENEFIT 2. Just Transition: Social Inclusion and Distributional Impacts</p>	TBD	<p>5,000 students enrolled on renewable, clean, and climate technology.</p>	<p>MDB project data.</p> <p>Employment survey results reported by the project implementation agencies.</p>	<p>Project Component 2.1</p>	<p>Just transition-framed analyses:</p> <ul style="list-style-type: none"> • Procedural justice: may examine the enhancement of social inclusion processes and procedures, such as stakeholder engagement at local and national levels, the extent to which vulnerable groups in impacted areas have been represented, gender inclusion, and the scope of social partners involved, i.e., government, labor, business, civil society, race, etc. • Distributional impacts: with focus on specific subpopulations, such as ethnic, religious, and racial minorities, female-headed households, indigenous People and local communities, migrants, youth, and persons with disabilities.
<p>CO-BENEFIT 3. Enhanced Energy Access</p> <p>National RISE Scores (ESMAP)</p> <p>National MTF rates (ESMAP) / SE4All Global Tracking Framework (GTF)</p>	TBD	TBD	<p>National statistics, macro-level indicators, World Bank and MDB country data</p>	<p>Indicators may measure increased, more affordable and/or more reliable access to clean energy</p>	

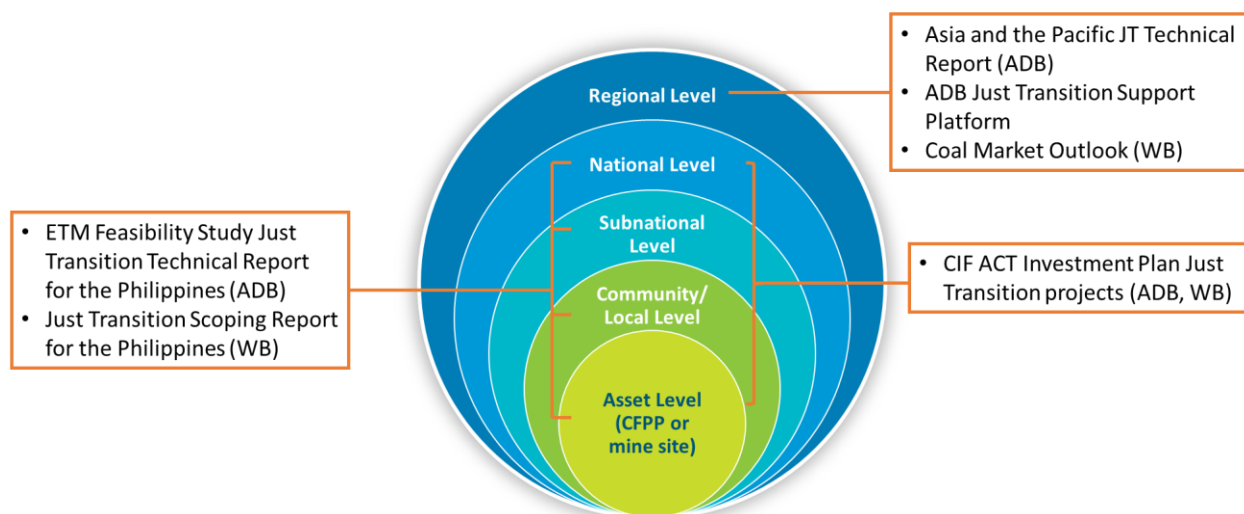
<p>CO-BENEFIT 4. Gender- and vulnerable groups-specific co-benefits</p> <p>Number of beneficiaries (#)</p> <p>Dollar share tracking (amount and %) of stand-alone gender activities withing CIF project</p>	<p>0</p>	<p>TBD</p>	<p>MDB project data</p>	<p>This would include beneficiaries of, for example:</p> <ul style="list-style-type: none"> • Improved RE employment • STEM skill development • Livelihood and skills development, entrepreneurship training, and credit access • Gender-specific financial products, especially for productive-use applications, gender-specific design measures in energy-related services or outreach • Institutional measures, such as policy, planning, and budgeting support, inclusive human resources policies, or other policies targeted at reducing inequality, including in procurement practices, actions against gender-based violence, and measures, such as subsidies, to reduce burden of connection fees for vulnerable groups like female-headed households • Other measures designed to reduce gender and inequality gaps in the sector/subsector in which the program/project proposed for CIF funding is taking place 	

Source: ADB, IFC, World Bank.

APPENDIX 4: OVERVIEW OF JUST TRANSITION ACTIVITIES SUPPORTING THE CLIMATE INVESTMENT FUND–ACCELERATING COAL TRANSITION INVESTMENT PLAN

Figure 19 describes ongoing engagement on just transition in the Philippines by the Asian Development Bank (ADB) and the World Bank Group (WBG) across all aspects of the agenda, that informs the Climate Investment Fund–Accelerating Coal Transition Investment Plan (CIF–ACT IP) programming. Parties are working together with other development partners to ensure consistency across just transition activities in the country and maximize the utility of the work through research, analysis, consultation, and implementation.

Figure 18: Ongoing Engagements on Just Transition in the Philippines



ADB = Asian Development Bank, ACT = Accelerating Coal Transition, CFPP = coal-fired power plant, CIF = Climate Investment Fund, JT = just transition, WB = World Bank.

Source: ADB.

ADB Just Transition Support Platform: ADB launched in 2022 a Just Transition Support Platform which is part of ADB’s commitment to ensuring that the benefits of the shift to low-carbon, resilient economies are inclusive and equitable while maximizing the gender, social and economic outcomes. The platform aims to build the capacity of developing member countries (DMCs) to understand, strategically plan, implement, and finance just transition, contributing to the achievement of their commitments under the Paris Agreement and the Sustainable Development Goals (SDGs).

Energy Transition Mechanism Feasibility Study for the Philippines: ADB launched the Energy Transition Mechanism (ETM) in the 2021 United Nations Climate Change Conference (COP26) together with the Government of the Philippines (GOP) and the Government of Indonesia to support the two countries accelerate the transition from coal to clean energy in a just and affordable manner. The ETM is a program that utilizes concessional and commercial capital from various public and private sources to incentivize the early retirement or repurposing of CFPPs and other carbon-intensive power generation while also unleashing new investments in clean energy, grids, and energy storage. ADB’s work on ETM promotes a just energy transition,

protecting the livelihoods of any workers and communities affected by the transition. As part of ADB's ongoing ETM feasibility study for the Philippines, an initial assessment of the potential socioeconomic impacts and benefits of accelerated voluntary CFPP retirement in the country is being conducted. As part of this, ADB is looking at the socioeconomic context and impacts of the coal transition in some CFPPs and outlines how CFPP retirement can be managed by utilizing just transition frameworks to mitigate adverse impacts. Moreover, the study is identifying potential benefits of the early retirement of CFPPs, including improvement of environmental conditions and community health, positive impacts to the livelihoods of fishing communities and ecotourism, and reduced marine traffic congestion.

The World Bank's Just Transition work in the Philippines: The next phase of the World Bank's just transition work in the Philippines will be organized as part of the World Bank's support under the CIF governance pillar; Detailed activities will be identified in collaboration with the GOP and ADB, and could include: (i) a more detailed profiling of select coal-fired power plant locations to explore in more detail how communities will be affected by closings, especially focusing on the loss of corporate social responsibilities like basic services and carbon sinks; (ii) assessment how the livelihoods of affected communities will be impacted by the closings and how community-based livelihood diversification can be supported; (iii) an outline of a proposal for community participation in and empowerment during transition planning; (iv) profiling and identification of particular support required for specific vulnerable groups, including women, youth, indigenous people and the poor; and (v) exploration of how vulnerable groups and their rights, especially land rights, can best be protected as renewable energies are scaled up and more land is needed.

APPENDIX 5: OVERVIEW OF GENDER MAINSTREAMING AND CATEGORISATION APPROACHES

The Asian Development Bank (ADB) approach and tentative gender categorization of the proposed projects under the Climate Investment Fund–Accelerating Coal Transition Investment Plan (CIF–ACT IP). The ADB gender categorization system is a 4-tier system to measure, count, and report on the extent to which gender equality issues are integrated into project design. It is a mechanism for reporting ADB’s “at entry” gender mainstreaming commitments and for monitoring performance against the corporate results targets under Strategy 2030’s Operational Priority (OP) 2: Accelerating Progress in Gender Equality (OP2).¹ All sovereign and non-sovereign projects of the ADB are assigned one of four gender mainstreaming categories: (i) Category I: gender equity theme (GEN); ii) Category II: effective gender mainstreaming (EGM); (iii) Category III: some gender elements (SGE); and (iv) Category IV: no gender elements (NGE).

The initial gender categorization for the proposed investments under the CIF–ACT IP is summarized in Table 7. Gender action plans will be prepared for projects that are categorized as GEN, EGM based on poverty, social and gender analysis at the project preparatory stage.

Table 7: Initial Gender Categorization for Proposed ADB Projects under the Climate Investment Fund–Accelerating Coal Transition Investment Plan

Proposed Asian Development Bank Projects	Initial Gender Categorization	Remark
Project 1.1 (Early Retirement of Mindanao Coal-Fired Power Plants)	To be assigned at concept review/approval. Likely Effective Gender Mainstreaming (EGM).	Category will be confirmed at project approval stage.
Project 1.2 (Private Sector Decarbonization and Repowering Program)	To be assigned at the stage of concept review and approval. Likely Effective Gender Mainstreaming (EGM).	Category will be confirmed at project approval stage.
Project 2.1 (Project PRISTINE)	To be assigned at concept review/approval. Likely Effective Gender Mainstreaming (EGM).	Category will be confirmed at project approval stage.

Source: ADB.

The World Bank approach and tentative gender categorization of the proposed projects under CIF–ACT IP: The World Bank uses a “Gender Tag” system to assess whether a project integrates gender aspect in its development and implementation. To meet the criteria for a gender tag, projects should include the following components:

- Gender Analysis: Identify and substantiate that the gaps between or among females and males in a given sector or project context, especially those identified through the systematic country diagnostic (SCD) and the country partnership framework (CPF), are relevant to the project development objective (PDO) and the four pillars of the World Bank Group’s (WBG) gender strategy;

¹ ADB. 2019. *Strategy 2030. Operational Plan for Priority 2. Accelerating Progress in Gender Equality 2019-2024*. Manila.

- Gender Actions: Aim to address identified gender gaps by designing specific actions that are supported by the project; and
- Gender Indicators: Link these actions to indicators included in the results framework to measure the progress of the proposed actions.

A gender-tagged project will cover the gender gaps analyzed during its initial stage (gender analysis component), particularly those potential inequalities pre-identified through the systematic country diagnostic (SCD) and the country partnership framework (CPF). Actions are then developed to close the identified gender gaps (Gender Actions component). Gender indicators are then included in the results framework to assess the actions' progress. The World Bank's "gender-tagging" system focuses on the quality and depth of the project's outcomes, rather than on processes and quantitative measurements alone. For the proposed projects under this CIF–ACT IP, the initial gender categorization can be seen in Table 8.

Table 8: Initial Gender Categorization for Proposed WBG Projects under the Climate Investment Fund–Accelerating Coal Transition Investment Plan

Proposed World Bank Group Projects	Initial Gender Categorization	Remark
Project 1.3 (Accelerating Development of Renewable Energy and Transition from Coal)	Gender analysis to identify gender-tagging at concept review and approval.	If gender-tagged, relevant gender actions and gender indicators to be determined at project approval stage.
Project 2.1 (Energy Transition Technical Assistance)	To be assigned at the stage of concept review and approval.	Category will be confirmed at project approval stage

Source: IFC, World Bank.

APPENDIX 6: THE ASIAN DEVELOPMENT BANK ENERGY SECTOR SUPPORT PROGRAM AND EXPERIENCE IN PHILIPPINES

The Asian Development Bank (ADB) has provided long-term and coordinated support to the Philippines for the energy sector since 1966. ADB's support to the Philippine energy sector crosses both the public and private value chain for the energy sector as well as technical assistance and policy dialogues to plan market reforms and design the power market.

As of December 2022, ADB has provided 34 loans related to the Philippine energy sector totaling to a cumulative value of \$3.69 billion. In addition, ADB has also provided 39¹ technical assistance grants to the energy sector with a combined value of \$21.4 million covering areas such as (i) transition from coal to clean energy; (ii) rural electrification; (iii) energy efficiency and conservation (including ancillary services), for local government units; (iv) tariff and pricing studies; (v) new technology demonstrations such as in-canal hybrid hydro and floating solar with storage; (vi) electric vehicle (EV) infrastructure; (vii) regulatory de-risking such as with geothermal; (viii) power development planning like with offshore wind; (ix) key feasibility studies; (x) environmental assessments; (xi) renewable energy (RE); (xii) clean energy technology; and (xiii) grid strength and electricity reliability.

In March 2022, ADB committed its first dedicated climate change policy-based loan through the \$250-million Climate Change Action Program, Subprogram 1. The program aims to support the Philippines in implementing its national climate policies and scaling up climate adaptation, mitigation, and disaster resilience.

ADB Energy Transition Mechanism Initiative: The Government of the Philippines (GOP), the Government of Indonesia, and ADB announced a partnership in November 2021 at the 26th United Nations Climate Change Conference (COP26) to design and launch an ETM initiative to accelerate the transition from coal-to-clean energy in Southeast Asia in a just and affordable manner.

Under the partnership with Philippines and Indonesia, ADB has made significant progress and has moved from a concept to an operational program. ADB conducted a pre-feasibility study for the Philippines in 2021. A full feasibility study for the ETM is underway. In the Philippines, ADB is currently engaged in the following:

- Identifying through a feasibility study, a pool of candidate coal-fired power plants (CFPPs) for early retirement and/or repurposing;
- Initiating the establishment of an ETM Fund/Vehicle (at the regional level) through the issuance of a request for concepts from the private sector;
- Initiating strategic environmental and social assessment (SESA) and just transition assessments to identify impacts of the energy transition as it unfolds and related mitigation measures;
- Collaborating with the Power Sector Assets and Liabilities Management Corporation (PSALM) for supporting energy transition for Mindanao CFPPs; and
- Discussing with private independent power producers (IPPs) on the ETM concept and various scenarios for coal retirement.

¹ Includes Philippines-specific technical assistance (TA) support. It does not include Philippine-specific allocations from regional energy TA projects.

Overall, ETM is being designed to be a scalable, collaborative mechanism developed in partnership with developing countries that will leverage a market-based approach to accelerate the transition from fossil fuels to clean energy. It prioritizes a country-specific approach that seeks government buy-in and seeks to apply innovative finance approaches to leverage public, private, and concessional capital to accelerate fossil-fuel retirement, develop renewable replacement capacity, and fund a just transition. MDB involvement ensures appropriate governance and legal structure to ensure monitoring and follow-through.

Recently, ADB has coordinated with the Energy Regulatory Commission (ERC) on recommending updates to the Ancillary Service Procurement Plan to improve competition, transparency, and market fairness for the reserves market. Furthermore, ADB has provided technical and expert assistance to help develop the nation's first regulatory frameworks for offshore wind and implement rules for the first utility-scale floating solar in the country, as well as recommending methods to financially de-risk the predevelopment of geothermal projects.

ADB also provides technical assistance in partnership with the private sector and local government units in harnessing renewable energy (RE) sources at the community level. With respect to using RE to expedite electrification, ADB has supported the development of business models for community-based RE systems. This support has included the piloting of one such model, which led to the development of micro-hydro systems that now serve two villages in Mindanao. ADB has also supported small island electrification by deploying hybrid solar systems to electrify islands in Romblon and Antique. These projects demonstrate the viability of scaling up renewables in off-grid contexts and provide an impetus for expansion to other small islands—potentially by incorporating innovative business models that bring in the private sector.

In the field of energy efficiency, the Philippine Energy Efficiency Project was approved in 2009 for \$31.1 million. The project retrofitted 150 government office buildings and almost 4,000 public parks and streetlights and 260 traffic intersections with energy efficient lighting systems; distributed 8.6 million compact fluorescent lamps nationwide; installed solar home systems in roughly 220 households in off-grid areas; assisted in establishing a green rating system for buildings; established a lamp waste management facility, properly disposed of 4.4 million incandescent bulbs; and enhanced the energy efficiency testing facilities of the Department of Energy (DOE). The Philippine Energy Efficiency Project resulted in energy savings of about 360 gigawatt-hours (GWh) per year and deferral of an investment in 230 megawatts (MW) of CFPP. Low-income customers particularly benefited from these efforts as lighting accounts for a significant portion of their electricity consumption. To expand upon progress for inclusive energy efficiency, ADB's ongoing collaboration with the DOE aims to build practical tools for LGUs to plan, procure, and finance energy efficiency improvements.

With its Private Sector Operations Department, ADB's support to the power sector extends to privatization and the support of renewable investments. Both establishing relevant funds and through direct project-level investments, ADB has supported the government in privatizing power assets and constructed a Visayan power plant to address power shortages in the region. In recent years, ADB's support for the power sector has included RE projects including an investment in the wind farm project in Northern Luzon.

APPENDIX 7: THE WORLD BANK GROUP'S ENERGY SECTOR SUPPORT PROGRAM AND EXPERIENCE IN PHILIPPINES

Both the World Bank and the International Finance Corporation (IFC) are actively engaged in supporting clean energy transition in the Philippines. Given the liberalized nature of the energy market and private sector dominance in energy sector investment in the Philippines, the current World Bank assistance in the energy sector focuses primarily on supporting (1) policy and regulatory reforms that enable greater private sector investments in scaling up deployment of renewable energy (RE), particularly solar and onshore/offshore wind; (2) strategy formulation and system planning for decarbonization of the power sector; (3) RE-based last mile rural electrification; and (4) energy efficiency in the public sector. These supports are often delivered in collaboration with other development partners working in the Philippines, such as the European Union and the Government of Australia. The IFC, on the other hand, has growing portfolio of engagement with the private sector in areas of RE, green buildings and green financing. Close coordination between the World Bank and IFC are made to ensure consistency and complementarity of the overall World Bank Group (WBG) support to energy transition in the Philippines.

Specific activities being undertaken by the World Bank in the last 3 years include:

- Energy transition programmatic technical assistance under which the Philippines Offshore Wind Development Roadmap was launched in April 2022 and a Philippine energy transition policy note was published in June 2023;
- Delivery of the First Sustainable Recovery Development Policy Loan in June 2023, which supports important regulatory reforms in expanding foreign direct investments in RE and streamlining permitting process of RE projects;
- Implementation of Access to Sustainable Energy Project which demonstrated at scale of a sustainable electrification business model based on pre-paid solar home systems and piloted integration of small solar plants in rural electricity distribution systems;
- Completion of pre-feasibility studies of hybridization of off-grid diesel power systems and energy efficiency investment in municipal water supply utilities; and
- Completion of a scoping study for more detailed understanding of key just transition issues in Philippines context.

The World Bank has worked closely with key government agencies in its energy sector assistance including Department of Finance, Department of Energy, the National Economic Development Authority, Energy Regulatory Commission, and National Electrification Administration. Going forward, the World Bank's support will be closely aligned with the Government of the Philippines' (GOP) new energy transition strategy, which entails accelerated deployment of offshore wind, a focus on the development of green and smart transmission required for clean energy transition, and efforts to voluntarily retire or repurpose CFPP generation. Continued support will also be provided for the implementation of the government's full electrification agenda and for intensifying efforts in energy efficiency and demand side management.

IFC provides four types of environment, social and governance (ESG) support in the energy sector. First, IFC ensures that all its investments comply with IFC performance standards and that all future investments are Paris Aligned. Second, IFC provides project development support to clients in putting together ESG-related projects such as PPPs for hydro plants, battery storage, and green buildings. Third, IFC provides advisory support to clients to develop sustainability frameworks for their green and sustainability-linked issuances. Fourth, IFC works with

governments to reform regulations that will enable green private sector investments such as carbon credits, offshore wind, and electric vehicle transition.

IFC anchored AC Energy Corporation's first green bond issuance in 2019 (\$75 million). It has also provided subsequent green loans and equity to the Energy Development Corporation (EDC) to provide continuous support in its RE build-out (total of \$297 million between 2006 and 2018). In 2022, IFC provided one of the first climate-tagged project finance (\$25.5 million) loans to a telecom tower company, CREI Phils, to put up towers powered with solar energy. IFC provides financing not just directly for green energy projects, but also through financial institutions that are on-lent toward RE projects, including the BDO Green Bond (\$150 million) and the more recent BPI Green Bond (\$250 million).

APPENDIX 8: PROJECT CONCEPT – EARLY RETIREMENT OF MINDANAO CFPP

Problem Statement

The Mindanao grid (4.5 gigawatts [GW] installed capacity) is mainly supplied by coal and fossil-fuel plants, despite the strong potential for renewable energy (RE). Local authorities estimated that an additional 2 GW RE capacity is possible by 2028, with 400 megawatts (MW) already under permitting applications. With the Mindanao grid currently at overcapacity, and the planned interconnection with the main Luzon–Visayas grid only via a single 450 MW subsea transmission line by 2023–2024, the energy transition faces a challenge if the incumbent coal and fossil-fuel plants, which have long-term and/or rolling contracts are not displaced timely.

The coal power generation in the Philippines is primarily privatized, except for the 200 MW Mindanao coal-fired power plant (CFPP). At the end of the cooperation period with the private sector in 2031, the ownership of Mindanao CFPP will be transferred to the Power Sector Assets and Liabilities Management Corporation (PSALM), a state-owned entity responsible for disposing of the remaining power sector assets of the National Power Corporation after the market liberalization in the 2000s.

Currently, the Mindanao CFPP is being run by the private sector under a build-operate-transfer (BOT) concession until 2031. Upon its transfer to PSALM, the asset will have a remaining operational life of 15–20 years (assuming a useful life of 40–45 years). Additionally, PSALM serves as the offtaker of the power generated by the Mindanao CFPP and has the option to buy out the BOT concession.

PSALM, with support from the ADB, is actively exploring options for the early retirement and repurposing of the Mindanao CFPP, with an aim to establish a precedent for coal to clean energy transition for the private sector to follow.

Proposed Transformation:

The Energy Transition Mechanism (ETM) structure for PSALM involves a comprehensive energy transition plan, which includes the early retirement of the Mindanao CFPP (including a potential BOT buyout), subsequent decommissioning or repurposing of the asset, and replacement of power with clean energy (for example repurposing of the site into a solar park among other potential solutions).

The ETM program aims to use a combination of concessional and commercial capital, to facilitate the early retirement of Mindanao CFPP and accelerate the development of clean energy replacements. The proposed project will assist PSALM in awarding a contract to the private sector entity (selected through a competitive tender process) for the decommissioning and/or repurposing of the Mindanao CFPP, potentially in combination with the development of assets for the replacement of electricity with clean energy (including necessary transmission upgrades). The ADB ETM financing, cofinanced by the Climate Investment Fund–Accelerating Coal Transition (CIF–ACT), will be provided to the eventual private sector winning bidder. The ADB ETM financing and CIF–ACT cofinancing will be administered through the ETM fund vehicle (if the fund vehicle is established before the transaction closure) which would structure and execute the financing of the project. Such financing will be made available to bidders as a “stapled” option to maximize the impact of such financing by allowing bidders to consider the benefit of concessional financing in optimizing their proposed bid for the project.

Implementation Readiness

Detailed discussions with PSALM management regarding the asset are ongoing. These discussions involve analyzing different repurposing solutions and considering bundling options with assets related to the replacement of power.

Rationale for Accelerating Coal Transition Cofinancing

CIF cofinancing can help lower the weighted average cost of capital for the transaction, which can generate a net present value gain to offset the economic cost of early retirement of the Mindanao CFPP. Without access to the CIF's toolbox of flexible cost and risk-bearing instruments, it would be impossible to adequately compensate for financial loss due to the shorter operational life of the Mindanao CFPP.

The CIF-ACT grant funding would be used for technical assistance to support just transition activities for the Mindanao CFPP. Learnings from preliminary just transition assessments and processes conducted under ADB's ETM program will be used to develop the process at Mindanao. The just transition activities would include i) conducting a Just Transition Assessment (JTA) to identify direct, indirect, and induced impacts on the plant and local labor force (including a socio-economic profiling), the CFPP value chain, local economy and businesses (to understand the economic dependency of the local region on the plant and stocktake existing institutional, regulatory, financial, education and social sector capacities, processes, programs, and schemes) and vulnerable and marginalized groups brought about by the CFPP's early retirement and/or repurposing, ii) developing a Just Transition Plan (JTP) based on the JTA needs assessment which will include measures to reduce the negative impacts and maximize opportunities at the asset and local level, and identify and develop capacity of key stakeholders to implement these measures, iii) coordinating and working with the national just transition approach development and ADB's Just Transition Support Platform on interventions needed at the national and provincial level, and iv) developing a stakeholder engagement and communication approach encompassing involvement of workers, communities, vulnerable and marginalized groups (women, youth, indigenous people, and other relevant stakeholders), civil society, and local governments (barangay up to provincial levels) at all stages of the just transition process—including stakeholder mapping, socializing the JTA, and JTP development and implementation.

Table 9: Results Indicators*

Result	Indicator	Baseline	Target	Data Source & Means of Verification
Reduce GHG emissions	GHG emissions reduced or avoided (million tCO ₂ e)	n/a	7	MDB results reporting
Mobilized cofinancing	Volume of CIF cofinancing leveraged	n/a	380	MDB Public disclosures
Coal abatement	Amount of coal diverted (million tons)	n/a	6	MDB Public disclosures

GHG = greenhouse gas, MDB = multilateral development bank, TBD = to be determined.

* To be finalized.

Note: Baseline and targets are currently being developed.

Source: Asian Development Bank.

Table 10: Financing Plan

Source	Amount (US\$ million)
Asian Development Bank (through ETM fund vehicle or directly)	95
Climate Investment Fund Debt	95
Climate Investment Fund Grant	1
Commercial Cofinancing	285
Total	476 (475 and 1 Grant)

Source: Asian Development Bank.

Table 11: Program Preparation Timetable

Milestones	Expected Completion Date
Execution of mandate letter between Asian Development Bank and Power Sector Assets and Liabilities Management Corporation	Q4 2023
Due diligence and structuring of the Project	Q2 2024
Preparation of tender documents and launch of the tender process for the Project	Q4 2024
Commercial close (award of the project)	Q3 2025
Loan negotiations	Q4 2025
If executed through ADB ETM fund vehicle (ADB ETM FV): - ADB ETM FV Investment Committee approval	Q4 2025
If executed through ADB private sector: - Investment Committee approval	Q4 2025
- ADB Board approval	Q1 2026
Financial close	Q2 2026

ADB = Asian Development Bank, ETM = Energy Transition Mechanism, Q = quarter.

Source: Asian Development Bank.

APPENDIX 9: PROJECT CONCEPT – PRIVATE SECTOR DECARBONIZATION AND REPOWERING PROGRAM

Problem Statement

The installed electricity generation capacity of the Philippines as of 2022 was 28.3 gigawatts (GW), with 44% of this capacity coming from coal-fired power plants (CFPPs). All CFPPs, except for the Mindanao CFPP (see Appendix 8), are owned by the private sector. Although the Department of Energy (DOE) implemented a moratorium on greenfield CFPPs starting from October 2020, there remains a large imbalance between the current plus expected energy demand growth and the new capacity pipeline. The energy sector faces dual pressure to develop new RE sources and retire or repurpose their coal assets, while ensuring that the country's energy security is preserved. Such balancing requires significant capital mobilization for the private sector, and thus it is necessary to incentivize the private sector to expedite this transition. Accelerating the voluntary retirement of privately owned CFPPs will enable scope for further investments in cost-effective renewable energy (RE) sources in the Philippines.

As the grid incorporates more variable renewables, additional balancing services, such as frequency control, regulation, and spinning reserves, must be provided. This can be achieved through the introduction of hydropower and energy storage solutions such as battery energy storage system (BESS) and pump storage, among others.

Proposed Transformation

- **Subcomponent A.** Sustainability-linked lending is designed to incentivize private sector borrowers with a significant portfolio of operational CFPPs to accelerate voluntary retirement and/or repurposing of these coal plants in their portfolio. In parallel, such lending also aims to promote the development of RE as an alternative source of electricity supply. This is accomplished by offering pricing incentives and/or triggering disbursement milestones when the borrower meets pre-agreed environmental, social, developmental, and/or governance targets.

An initial assessment will be conducted to evaluate the commercial, legal, and technical feasibility of the borrower's CFPP portfolio. This assessment will enable the Asian Development Bank (ADB) to develop a corporate level decarbonization plan and establish a clear road map toward achieving concrete outcomes. Subsequently, both corporate and project-level metrics that align with the borrower's business strategy will be identified. Proposed targets for each metric will be compared to the borrower's historical performance and industry peers to ensure they are suitably ambitious. The process also includes defining relevant reporting methodologies and implementing external verification mechanisms to ensure compliance with the established targets. Additionally, financial incentives will be structured in accordance with the level of ambition associated with the targets.

- **Subcomponent B.** Significant investments are still needed to deploy firm RE sources for replacing outgoing CFPPs. ADB will adopt a focused approach to advance RE development in the Philippines for replacement of power in the same grid where CFPPs are retired under Project Components 1.1 and 1.2 (only to the extent such replacement of power is not already included in the scope of Project Components 1.1 and 1.2).

These include the following initiatives:

1. **For coal-fired power plants retired in the Luzon region.** Development of a pilot floating solar park in Laguna Lake, located in the Luzon region, with an initial target capacity of up to 1 GW. Potential firming solutions, such as the integration of BESS with floating solar,

will also be explored. Preliminary studies indicate a potential of up to 15 GW of floating solar photovoltaic based generation capacity in the lake. The successful implementation of this pilot project will set a precedent for developing floating projects or other RE capacity under a renewable park-based model; and

2. **For Other coal-fired power plants.** Support the development of other RE technologies which have not yet achieved grid parity (such as geothermal, pump hydro, BESS, etc.) in the Green Energy Auction Program (GEAP).

ADB Energy Transition Mechanism (ETM) financing, cofinanced by the Climate Investment Fund–Accelerating Coal Transition (CIF–ACT), will be made available to bidders as a “stapled” option to maximize the impact of such financing. The ADB ETM financing and CIF-ACT cofinancing will be administered through the ADB ETM fund vehicle (if the fund vehicle is established before transaction closure) which will originate, develop, structure and execute the financing for identified project(s). This will allow bidders to consider the benefit of concessional financing in optimizing their proposed tariff for the above projects.

Implementation Readiness

- **Subcomponent A.** ADB is actively engaging with leading power sector developers with a significant portfolio of operation CFPPs in the Philippines to develop decarbonization and sustainability strategies for accelerated coal transition and replacement with RE. ADB is also considering supporting these developers in developing strategies for potential repurposing of the CFPPs.
- **Subcomponent B.** ADB has supported the Laguna Lake Development Authority (LLDA) in undertaking the carrying capacity assessment of the Laguna Lake for utility-scale floating solar projects. ADB is currently under discussion with DOE and LLDA to provide advisory support for the development of the pilot floating solar park in Laguna Lake.

In 2021, DOE introduced the GEAP to facilitate the development of RE under competitive process (together with long-term contracts). GEAP would assist in ensuring sufficient clean energy is available to be procured by the mandated participants to meet their requirements. So, far two rounds of GEAP have been conducted in June 2022 and June 2023 respectively. Further rounds are expected in the future.

Rationale for Accelerating Coal Transition Cofinancing

The concessional funds provided by the CIF–ACT program would complement ADB ETM financing in supporting the private sector developer to increase the proportion of RE generation and encourage the expedited voluntary retirement of CFPPs in their portfolio. ADB's sustainability-linked lending approach proves to be the most suitable form of financing in this context. By setting financing targets that emphasize the attainment of specific and measurable outcomes, developers are motivated to concentrate their efforts on delivering financial, environmental, and social benefits, rather than solely focusing on constructing additional energy infrastructure. The concessional funds from CIF–ACT will contribute to incentivizing developers to fulfill their commitments and expedite the shift toward RE.

The CIF-ACT grant would further support this program by providing funding for institutionalizing a just transition process developed based on the ETM Just Transition framework for private sector developers and transactions. The ETM Just Transition Framework incorporates learnings from the retirement/repurposing under ADB's ETM program and just transition activities carried out at ETM sites, existing ADB policies, global best practices, and ADB internal expertise. This

framework will be used for this program to provide guidelines for asset owners to incorporate and integrate just transition assessments and implementation processes as part of their existing compliance policies and operations while preparing for the early retirement or repurposing of the CFPPs in their pipeline. A portion of the ACT grant would be used to pilot this approach at a specific asset owned by the developer.

Table 12: Results Indicators*

Result	Indicator	Baseline	Target	Data Source & Means of Verification
Reduce GHG emissions	GHG emissions reduced or avoided (million tCO ₂ e)	n/a	13	MDB results reporting
Mobilized cofinancing	Volume of CIF cofinancing leveraged (\$ million)	n/a	480	MDB Public disclosures
Coal abatement	Amount of coal diverted (million tons)	n/a	11	MDB Public disclosures
Cleaner energy sources	Installed capacity of RE (MW)	n/a	540	MDB Public disclosures

CIF = Climate Investment Fund, CO₂ = carbon dioxide, GHG = greenhouse gas, MDB = multilateral development bank, N/A = not applicable.

* To be finalized.

Note: Baseline and targets are currently being developed.

Source: Asian Development Bank.

Table 13: Financing Plan

Source	Amount (US\$ million)
Asian Development Bank (through ETM fund vehicle or directly)	240
Climate Investment Fund Debt	120
Climate Investment Fund Grant	2
Commercial Cofinancing	240
Total	602 (600 and 2 Grant)

Source: Asian Development Bank.

Table 14: Program Preparation Timetable

Milestones	Expected Completion Date
Project 1 structuring and preparation	Q2 2024
Project 1 loan negotiations	Q3 2024

If executed through ADB ETM fund vehicle (ADB ETM FV): - ADB ETM FV Investment Committee approval	Q3 2024
If executed through ADB private sector: - Investment Committee approval - ADB Board approval	Q3 2024 Q4 2024
Financial close for Project 1	Q2 2025
Processing for future projects under program	TBD

Q = quarter, TBD = to be determined.

Source: Asian Development Bank.

APPENDIX 10: PROJECT CONCEPT – ACCELERATING DEVELOPMENT OF RENEWABLE ENERGY AND TRANSITION FROM COAL

Problem Statement

As of 2022, coal accounted for 60% of generation (out of 108 terawatt-hours [TWh]) in the Philippines. About 16–18 TWh of renewable energy (RE) supply would be required to meet the Department of Energy's (DOE) 35% RE share in the generation mix.

However, coal retirement is challenging for a number of reasons. First, the country is experiencing an energy deficit. In 2022, the country saw 10 instances when there was not enough generation to meet reserve requirements and 3 instances when supply fell so much as to lead to rotating power interruptions. This deficit is expected to persist. RE sources would need to be built at a faster pace than demand growth to offset coal retirement. Second, the country's energy sector is liberalized, and most coal assets are owned by private corporations. The DOE intends to rely on market forces to voluntarily retire coal plants. However, the average age of coal plants in the country is roughly 12–13 years, when the useful lives could go as long as 40-45 years. Finally, intermittent RE sources are not able to provide firm generation and ancillary services. Any replacement of coal assets will need either dispatchable RE or storage—both of which tend to be more expensive than coal.

To respond to these challenges, the International Finance Corporation (IFC) will use concessional financing to encourage voluntary early retirement or repurposing and transition from coal fired power plants by private sector operators and utilities and ensure that greenfield RE sources including storage and other technologies (such as offshore wind floating solar and pumped hydro plants) become more price competitive with coal. This will ensure just transition with competitive tariffs.

Proposed Transformation of Private Sector Utilities

IFC has been engaging with major private sector integrated utilities which own and operate a portfolio of generation as well as distribution assets. While many of these assets are owned by subsidiaries (including with joint venture partners), IFC has engaged at the corporate level of these investors to fully understand how they intend to meet their sustainability and net zero targets. These conversations include how the utilities can consider the transition from coal across their entire portfolio of companies and assets. For example, through its upstream project development team, IFC has financed a storage optimization and economic dispatch study that assesses the techno-economic viability of possible battery storage systems in various sub-grids in Luzon, Visayas and Mindanao and how these investments will ensure adequate capacity and grid stability while at the same time being commercially viable in the long run.

These studies underpin the development of more robust sustainability key performance indicators and plans, which can be the basis for an innovative sustainability-linked loan (SLL) or bond at the corporate level. This approach was pioneered with our \$400 million decarbonization SLL with Engie in Chile in which the early retirement of two CFPPs and integration of battery storage was included. IFC will continue to engage with private sector utilities on how CIF-ACT resources can incentivize the development of these sustainability plans in which CFPP retirement in the Philippines can be considered while maintaining the minimum integrity of the grid under likely growth scenarios.

Rationale for Accelerating Coal Transition Cofinancing

Distribution utilities are required to solicit their purchase power agreements (PPAs) through the competitive selection program, where PPAs are awarded on a lowest-cost basis. IFC will provide concessional financing to

- (a) integrated utilities at the corporate level to incentivize them to meet sustainability performance indicators, such as in an SLL, triggering rebalancing of their generation portfolios and transition away from CFPPs; and
- (b) greenfield RE projects including battery energy storage system (BESS) and other technologies (such as floating solar, offshore wind, and pumped hydro). This will allow the RE projects to be more price competitive versus coal and accelerate the contracting of PPAs backed by RE and displacing PPAs backed by coal, facilitating coal transition in the same grid. IFC will target RE projects within sufficient physical proximity to CFPPs to allow their retirement.

A portfolio of various types of intermittent RE and BESS projects together as well as dispatchable RE will allow generators to put together supply that is suitable as a replacement for thermal assets with firm generation or ancillary capabilities.

Given the different technologies that are required to meet demands of different utilities, IFC will fund these projects through structures that best suit the project requirements (senior debt, subordinated debt, mezzanine, etc.) while rationalizing the use of the CIF–ACT funds to target minimum concessionality.

The investment plan complements the government’s strategic direction and efforts to encourage development of newer technologies such as energy storage, offshore wind, and floating solar while adopting a market-based approach as renewable energy through such technologies becomes more price competitive for distribution utilities to procure to meet their renewable portfolio standard requirements.

Implementation Readiness

IFC has ongoing discussions at various stages with a number of private sector utilities and operators with plans to consider the voluntary early retirement or repurposing and transition of existing thermal plants, develop RE (including newer technologies) and storage projects. The CIF–ACT concessional financing will accelerate the projects’ implementation as their economics improves.

Table 15: Results Indicators*

Result	Indicator	Baseline	Target	Data Source & Means of Verification
Reduce GHG emissions	GHG emissions reduced or avoided (million tCO ₂ e)	n/a	13	MDB results reporting
Mobilized cofinancing	Volume of CIF cofinancing leveraged (\$ million)	n/a	560	MDB disclosures Public
Coal abatement	Amount of coal diverted (million tons)	n/a	8	MDB disclosures Public
Cleaner energy sources	Installed capacity of RE (MW)	n/a	630	MDB disclosures Public

CIF = Climate Investment Funds, CO2 = carbon dioxide, GHG = greenhouse gas, MDB = multilateral development bank, RE = renewable energy, PPA = purchase power agreement, TBD = to be determined.
 * To be finalized.

Note: Baseline and targets are currently being refined.

Source: International Finance Corporation.

Table 16: Financing Plan

Source	Amount (US\$ million)
International Finance Corporation	280
Climate Investment Fund Debt	140
Climate Investment Fund Grant	5
Commercial cofinancing	280
Total	705 (700 and 5 Grant)

Source: International Finance Corporation.

Table 17: Program Preparation Timetable

Milestones*	Expected Completion Date
International Finance Corporation mandate signing for Project 1	Q4 2024
Project 1 diligence, structuring, and internal approvals	Q1 2025
Project 1 financial close	H1 2025
Future projects	Rolling basis

H = half.

* Milestones are provided for the first Project. CIF–ACT funding will be deployed for some projects.

Source: International Finance Corporation.

APPENDIX 11: PROJECT CONCEPT – SUPPORTING RESEARCH, INNOVATION AND SKILL DEVELOPMENT FOR ENERGY TRANSITION AND INDUSTRIES TRANSFORMATION IN THE PHILIPPINES

Problem Statement

To achieve its commitments to United Nations Framework Convention on Climate Change and Paris Agreement, Philippines needs to scale up its knowledge base on renewable energy (RE) by building its capacity and capability to conduct applied research solutions, downstream research outputs in collaboration with the private sector, and skilling its workforce in renewable energy to support energy transition. ADB's Promote Research Innovation through Strengthening Transformation of industries and Enterprises (PRISTINE) project will leverage on applied research solutions and innovation, particularly in emerging science and technological fields to resolve key bottlenecks to productivity and growth. Study reveals that Philippines has inadequate capacity in research to produce high-value knowledge and technology outputs, leading to low levels of commercialization of products and services. The micro, small, and medium-sized enterprises (MSMEs) are either slow or unable to adapt and adopt new technologies, innovations, and in increasing productivity and using technologies to improve business operations. The Philippine Development Plan (PDP) 2023–2028 has identified critical constraints affecting science, technology and innovation (STI): (i) inadequate human resources in STI and research and development (R&D); (ii) underdeveloped research culture and productivity; (iii) insufficient spending on R&D standing at 0.32% of gross expenditure on R&D; (iv) underdeveloped linkages among stakeholders in R&D, technology, and innovation ecosystem; (v) lack of focus on information about markets or users and market system; and (vi) need for a more vigorous intellectual property culture. In addition, the Philippines National Innovation Agenda and Strategy Document 2023–2032 highlighted a fragmented innovation policies and programs including financing arrangements; and unwanted future of distress and disasters brought about by natural and human-induced hazards, aggravated by climate change and governance challenges.¹

Proposed Transformation

Under the project, The Asian Development Bank (ADB) will support the Department of Trade and Investment (DTI) in developing and implementing industries transformation and green transitioning initiatives among MSMEs by leveraging on four key Philippines universities Knowledge Innovation Science and Technology Park (KIST) or Science and Technology Park (STP). These four universities are tentatively Batangas State University, Mariano Marcos State University, University of Science and Technology of Southern Philippines, and University of the Philippines.²

PRISTINE project will strengthen the implementation of industrial transformation and green transition in MSMEs through evidence-based applied solutions. The project will specifically finance infrastructure and facilities for advanced applied research, innovation, and training and accreditation in emerging technologies, including centers of excellence for renewable, clean, efficient energies, and smart climate technologies in KIST and STP. The reskilling and upskilling training will include new courses on installation, commission, repair, maintenance of renewable energy assets such as offshore wind, energy storage, green hydrogen, electric vehicles, and smart and advanced climate agriculture. This approach ensures that both current and future

¹ National Innovation Council. 2023. *National Innovation Agenda and Strategy Document 2023-2032*. Manila.

² Proposed universities are subject to change depending on their readiness to implement the project. The universities have campuses across Southwestern Luzon, Northern Luzon, Northern Mindanao, with the University of the Philippines System having campuses across Luzon, Visayas and Mindanao, with one virtual university.

workforce needs are addressed, facilitating expanded income and livelihood generation opportunities. The project aims to reskill 3,000 existing workers and train 2,000 new graduates.

The PRISTINE project will also provide grants for applied research and startup incubation, including building incubation and acceleration ecosystem; and strengthen researchers capacity through joint research and/or training with reputable research centers. Several proposed applied research solutions, innovation, and topics under the project will be related to renewal energy development and applications.

- **Subproject 1 (Renewable, Clean and Efficient Energy).**³ Facilities will be established to carry out research, development, application, and skill development in emerging renewable, clean, and efficient use of energy. Skill development is important to ensure no worker is left behind as the Philippines transitions to the use of renewable and clean energy sources. Subproject 1 may include adapting and adopting emerging technologies as per the context (particularly risks consideration in view of adverse weather conditions and natural disasters) of the Philippines. It may also include the use of artificial intelligence and data science to implement efficient use of energy. Economic value chain (EVC) and supply chain maps will be mapped to current situation and context. The mappings of EVC and supply chain will determine where resources, talent, and capability are in the Philippines in emerging technologies which will help to support further investment in terms of knowledge and talent development.
- **Subproject 2 (EV and Climate Technology Development).** Facilities will be established to carry out research, development, application, and skill development in electric vehicle (EV) technology and smart climate technologies (sensor, IOT, big data, and artificial intelligence). EVC and supply chain will be developed and analyze for strengthen weakness opportunities and threat to ensure Philippines talent and workforce involved in internal combustion engine (ICE) industry and smart climate industry are able to be well-trained and transition into downstream manufacturing and applications. Research and development (R&D) in EV and smart climate technology will develop Philippines talent in the EVC that would create robust EV, and smart climate technology, contextualize to the needs and situation of the Philippines.

Implementation Readiness

The proposals will be aligned with the processing and implementation of the PRISTINE Project, which supports the government's strategy to leverage on key universities KIST on R&D and startup incubation to support industries transformation and green transitioning. This is aligned with the government's PDP 2023–2028 and the Philippine National Innovation Agenda and Strategy Document 2023–2032. PRISTINE project is tentatively scheduled for approval in the first quarter of 2025.

Rationale for Accelerating Coal Transition Cofinancing

Concessional Climate Investment Fund–Accelerating Coal Transition (CIF–ACT) funding would assist Philippines to pave the way for the transition to green and clean energy by covering the cost of human capital development particularly in workforce transition by training for future workforce competence to work and developed applied solutions in the clean energy sector. Specifically, CIF–ACT grant funds would likely support an ADB technical assistance for establishment costs of the PRISTINE Applied Research and Training Program (e.g., training curriculum and training delivery, industry transition and training road map development, joint research with industries, seed funding for startup incubator), that intends to foster an innovation

³ This may include offshore wind power, photovoltaic cell material development, hydropower, geothermal, energy storage solutions, green hydrogen, efficient energy powered by AI.

mindset in the renewable and clean energy sector, creating a space for RE technologies development and application, in the Philippines context.

Table 18: Results Indicators

Result	Indicator	Baseline	Target	Data Source & Means of verification
Center of Excellence on Research Development, Skill Development, and startup incubation for at least two identified technologies on renewable, clean, efficient energy established and operational	Hardware, software installed, commissioned, and operationalized for Center of Excellence.	0	3	Installation and commissioning report of center of excellence by vendors and universities/Training Institute
	Six joint research with private sector companies/communities completed, published, and scale up for commercialization or communities use	0	6	Publication, Patent/Utility model filing, and licensing agreement
Economic value chain (EVC) and supply chain map developed for at least three identified technologies on renewable, clean, efficient energy developed and endorsed by the Department of Trade and Industry (DTI) other stakeholders	Economic value chains and supply chain maps	0	6	Publication of EVCs and Value Chain Maps by DTI
Training courses (online and offline) to impart skillsets for developing talent in manufacturing, installing, commissioning, operating, maintaining system on identified renewable, clean and efficient technology (including climate technology) implemented in at least one learning institution (university or training institute)	Students' enrollment on training courses on renewable, clean, and efficient energy technology (with gender disaggregation)	0	5,000	Enrollment records

Center of Excellence on Electric Vehicle Technology and Smart Climate Technology established and operational	Hardware, software installed, commissioned, and operationalized for the Center of Excellence.	0	1	Installation and commissioning report of center of excellence by vendors and university or training institute
	Two joint research with electric vehicle (EV) and smart climate technology companies leading to commercialization	0	2	Patent or utility model filing and Licensing agreement
Startup companies in renewable, clean, efficient energy, and smart climate technology incubated or accelerated	Startup companies registered	0	15	Company registration

Note: Baseline and targets are currently being refined.

Source: Asian Development Bank.

Table 19: Financing Plan

Source	Amount (US\$ million)
Asian Development Bank	280
Climate Investment Fund Debt	120
Climate Investment Fund Grant	5
Government of the Philippines	50
Total	455 (450 and 5 Grant)

Source: Asian Development Bank.

Table 20: Program Preparation Timetable

Milestones	Expected Completion Date
PRISTINE Concept Note Approval	Q2 2024
Fact Finding Mission	Q2 2024
PRISTINE Project Approval	Q4 2024

PRISTINE = Promote Research Innovation through Strengthening Transformation of industries and Enterprises, Q = quarter.

Source: Asian Development Bank.

APPENDIX 12: PROJECT CONCEPT – NATIONAL JUST TRANSITION APPROACH DEVELOPMENT PROGRAM

Problem Statement

The Philippines' nationally determined contribution (NDC) highlights the country's priority on "social and climate justice," aiming to "accelerate the just transition of its sectors into a green economy" and to "deliver green jobs and other benefits of a climate and disaster-resilient and low-carbon development to its people."¹ Achieving a just energy transition requires a whole of government approach that considers the geopolitical context, enabling environment, direct, indirect, and induced impacts along the coal value chain, and from the national level up to the asset level. The Asian Development Bank (ADB) is in dialogue with the Government of the Philippines (GOP) to identify the focal ministry that will be responsible for the development of a National Just Transition Approach (NJTA) and managing cross-government coordination with relevant departments and entities. The Philippine Green Jobs Act (Republic Act 10771) was enacted in April 2016 to promote sustainable economic growth and creation of "employment that contributes to preserving or restoring the quality of the environment."² Following the strong emphasis of the GOP for a contextual and country-driven transition, ADB will work closely with GOP and the World Bank to determine the appropriate approach to institutionalizing just transition in the Philippines.

Proposed Transformation

Under this program, ADB will support the identified focal ministry in:

- i. identifying further analytical work required, building on initial work by ADB and the World Bank, that could cover, among others, socioeconomic impact modeling, landscape analysis, stakeholder mapping, labor audit, skills and education mapping, and strategic social and environmental assessments;
- ii. conducting stocktaking process to identify relevant policies, regulations, programs and activities already ongoing that can inform the process and/or be leveraged as part of the approach;
- iii. designing a participatory consultation process to ensure meaningful engagement and input from a broad range of stakeholders including government (including subnational), nongovernment, civil society, labor organizations, business, and academics;
- iv. developing the NJTA such as a framework, plan, or guidance document;
- v. establishing an institutional mechanism for implementation and monitoring and reporting; and
- vi. undertaking training and capacity building to support implementation.

Implementation Readiness

The proposed program will leverage on existing interdepartmental coordination mechanisms under the Green Jobs Act (i.e., with Climate Change Commission, Department of Labor and Employment, Department of Finance, Department of Environment and Natural Resources, etc.), which already involves several departments with identified roles, and with the addition of government units relevant to a just energy transition—energy sector (DOE and attached agencies), and social protection and local governance (Department of Social Welfare and Development, Department of Interior and Local Government, National Commission on Indigenous Peoples, Philippine Commission on Women, etc.). The program will seek the participation of key private sector players (independent power producers, utilities, etc.), civil society and nongovernment organizations, labor organizations, and will collaborate with development

¹ Government of the Philippines. 2021. [Nationally Determined Contribution](#). 15 April.

² Government of the Philippines. 2016. [Republic Act 10771](#). *Official Gazette*. 29 April.

partners actively working on just transition in the country such as the International Labour Organization, United Nations Development Programme, and United Nations Office for Project Services. The program will be lodged under ADB's existing Just Transition Support Platform with activities currently being implemented under a regional knowledge and support technical assistance (KSTA) project.³

Rationale for Accelerating Coal Transition Cofinancing

The grant from Climate Investment Fund–Accelerating Coal Transition (CIF–ACT) would support the activities outlined above and help the Philippines concretize its vision to accelerate the country's just transition toward a greener economy. By formulating the NJTA based on a participatory process underpinned by robust analytical studies, GOP is a step closer to ensuring that the people and communities adversely impacted by the coal transition would be supported and that the benefits of such transition will be shared across various stakeholder groups. The ACT grant would be instrumental in designing a framework to achieve the Philippines' just energy transition ambition and would help GOP in crowding-in financing for just transition activities across all levels – from national all the way to asset level.

Results expected from this program as outlined below will feed into the overall results framework of the Just Transition Support Platform.

Table 21: Results Indicators

Result	Indicator	Baseline	Target	Data Source & Means of Verification
Outcome: Ability of selected developing member countries to implement a just transition strengthened	Program to support the Government of the Philippines on just energy transition implemented	0 (2021)	1	Consultant reports, quarterly technical assistance (TA) progress reports
Output 1: Institutional capacity for the implementation of just transition in developing member countries strengthened	1a. At least 20 participants (at least 40% women) in at least one multi-stakeholder consultations or dialogues confirmed engagement in meaningful discussions on just transition in the Philippines	0 (2021)	20	Consultant reports, quarterly TA progress reports, consultation proceedings or dialogue summaries, feedback forms or post-event evaluation
	1b. At least one just transition-related assessment	0 (2021)	1	Consultant reports, quarterly TA progress reports

³ ADB. 2022. *Technical Assistance for Enabling a Just Transition to Low-Carbon and Climate-Resilient Economies and Societies in Asia and the Pacific*. Manila.

Result	Indicator	Baseline	Target	Data Source & Means of Verification
	(articulating differential opportunities and impacts on women and other vulnerable groups) completed in the Philippines			
	1c. At least one just transition policy or strategic recommendations developed for the Philippines through ADB-facilitated participatory processes	0 (2021)	1	Consultant reports, quarterly TA progress reports, endorsement or communication letter from the government, government news releases
	1d. At least 15 developing member country government participants (at least 40% women) from at least one capacity building program confirmed improved knowledge and awareness on just transition or just energy transition	0 (2021)	15	Consultant reports, quarterly TA progress reports, workshop/training reports, feedback forms or post-event evaluation
	1e. All TA assessments, capacity building initiatives, programs, or mechanisms developed are gender informed and mainstream gender equality	0 (2021)	1	Consultant reports, quarterly TA progress reports, consultation proceedings or dialogue summaries, workshop/training reports

Note: Baseline and targets are currently being refined.

Source: Asian Development Bank.

Table 22: Financing Plan^a

Source	Amount (US\$ million)
Asian Development Bank and other fund sources	1
Climate Investment Fund Grant	2
Total	3 (1 and 2 Grant)

a. Contribution from the Government of the Philippines to be confirmed.
Source: Asian Development Bank.

Table 23: Program Preparation Timetable

Milestones	Expected Completion Date
Climate Investment Fund–Accelerating Coal Transition Trust Fund Committee grant approval and addition of grant to the Asian Development Bank Just Transition Support Platform	H1 2024

H = half.

Source: Asian Development Bank.

APPENDIX 13: PROJECT CONCEPT – ENERGY TRANSITION TECHNICAL ASSISTANCE PROGRAM

Problem Statement

The Philippines is embarking on an ambitious program to scale up renewable energy and no new investments in greenfield coal-fired power plant. Under the Reference Scenario of the Philippine Energy Plan (PEP) 2023–2050 the share of renewable energy (RE) in the generation mix would increase from about 22% in 2022 to at least 35% by 2030 & 50% by 2040. Under its Clean Energy Scenario, the share of RE in the generation mix would increase to 35% by 2030, 50% by 2040, and more than 50% by 2050. To facilitate the transition to clean energy, the PEP 2023–2050 proposes voluntary retirement of CFPP generation capacity. The Department of Energy (DOE) announced a moratorium on endorsing new greenfield coal-fired power plants (CFPPs) in October 2020.

The Philippines will need to strengthen the legal, institutional, and regulatory environment in the energy sector to enable the energy transition. Reforms and capacity building are needed to (i) establish a framework for addressing the voluntary retirement and repurposing of CFPPs, (ii) manage the adverse impacts of the transition away from coal on workers and communities, (iii) unleash the full potential of energy efficiency and demand side management, (iii) create a level playing field for RE with fossil-fuel generation by introducing carbon pricing mechanisms, (iv) incentivize provision of ancillary services and promote investment in grid capacity and flexibility to address the challenges of large-scale integration of variable RE, (v) strengthen power system and energy sector planning to better guide energy transition investment decisions, and (vi) ensure that electricity markets are able to incorporate significant variable RE and deliver the benefits of increased competition to consumers while having mechanisms in place to ensure security of supply.

The knowledge and capacity of electricity sector institutions needs to be strengthened to facilitate the shift away from coal and toward a low-carbon energy system. It will be important to support electricity sector institutions such as the DOE, the Energy Regulatory Commission (ERC), Independent Electricity Market Operator of the Philippines, and National Transmission Corporation to (i) learn from international expertise and experience when designing reforms, (ii) prepare pipeline of projects that can be implemented with both private and public sector financing, (iii) carry out training and capacity building program for their staff and other stakeholders in the sector, (iv) adopt cutting edge digital information and organization management systems, and (v) undertake consultations among stakeholders and build consensus on reforms and investments that will be needed to achieve the Government of the Philippines' (GOP's) decarbonization targets.

Proposed Transformation:

The proposed Energy Transition Technical Assistance Program (ETTAP) will strengthen institutional and regulatory capacity for undertaking the energy transition in Philippines. The ETTAP will be implemented alongside proposed World Bank development policy financing (DPF), which will support the adoption of key policies and reforms to support energy transition and climate adaptation in the Philippines.

The proposed DPF will have policy pillars related to (i) coal to clean energy transition and adoption of low-carbon pathways, (ii) just energy transition, (iii) RE scale up, (iv) energy efficiency and demand side management, (v) transition to electric mobility, (vi) electricity market reforms, and (vii) electricity network modernization and flexibility. The ETTAP will support analytical work,

development of policy proposals, project preparation, training, knowledge exchange with other countries, stakeholder consultations, adoption of information and organization management systems for key electricity sector institutions mentioned above.

Implementation Readiness

The World Bank has initiated discussions on the DPF and ETTAP with the Department of Finance, DOE, ERC, and other stakeholders. The preparation of the DPF is ongoing and is expected to be approved in December 2024 and become effective in the first quarter of 2025. A scoping study and gap analysis for the ETTAP is ongoing and is expected to be completed in June 2024. The preparation of the ETTAP is expected to start in July 2024 pending the final approval of the Philippines ACT Investment Plan. The expectation is to synchronize the approval of the DPF and the ETTAP.

Rationale for Accelerating Coal Transition Cofinancing

The ETTAP will address the “Governance” and “People” aspects of the CIF–ACT program by focusing on supporting government capacity to prepare for the energy transition through capacity building of staff, analysis of decarbonization scenarios and pathways, project pipeline development and preparation, development of new policies and instruments needed to support the transition and investments in network infrastructure, and establishment of an enabling framework for just transition for people and communities likely to be impacted by coal to clean energy transition. These are all pre-requisites for ensuring sustainability and continuity of the energy transition in Philippines beyond the initial pilots, and to ensure that the institutions and people affected by the transition- at all levels- have the analytical tools, policy instruments, and skills and training needed to implement the transition. The proposed DPF and ETTAP are intended to be an ongoing, multi-year support by the WB to the GOP.

Table 24: Results Indicators*

Result	Indicator	Baseline	Target	Data Source & Means of Verification
Policies	Number of policies, regulations, strategies, codes, or standards that have been amended or adopted (#)	1	7	MDB Public disclosures; Implementing Agency reporting
Readiness	Number of people trained (#) Capacity of electricity sector institutions to manage the coal transition enhanced	n/a	TBD	MDB and Government Public disclosures

MDB = multilateral development bank, n/a = not applicable, TBD = to be determined.

* To be finalized.

Note: Baseline and targets are currently being refined.

Source: World Bank.

Table 25: Financing Plan

Source	Amount (US\$ million)
International Bank for Reconstruction and Development ^a	600
Climate Investment Fund Grant	10
Government of the Philippines ^b	5
Total	615 (605 and 10 Grant)

^a Indicative International Bank for Reconstruction and Development financing.

^b Indicative government contribution for the Energy Transition Technical Assistance Program to be confirmed during project preparation.

Source: World Bank.

Table 26: Program Preparation Timetable

Milestones	Expected Completion Date
Identification mission	Q2 2024
World Bank Concept Review	Q3 2024
Project scope and implementation arrangements agreed with the Government of the Philippines	Q4 2024
World Bank Decision Meeting	Q4 2024
World Bank Board Approval	Q1 2025

Q = quarter.

Source: World Bank.

APPENDIX 14: OVERVIEW OF THE NATIONAL STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT

I. Background

Strategic Environmental and Social Assessment (SESA) is a tool used to assess the environmental and social impacts of strategic policies, plans and programs. The Climate Investment Fund–Accelerating Coal Transition Investment Plan (CIF–ACT IP) preparation grant will support a national SESA to assess the environmental and socioeconomic impacts and opportunities (positive and negative) associated with energy transition. Energy transition will require wide-ranging multi-sectoral changes, which will give rise to environmental and social risks and impacts, but also opportunities, which are not fully addressed in current national regulatory frameworks, institutional mandates or resource planning.

A high-level regional SESA scoping study was prepared in 2022, as part of the Asian Development Bank’s (ADB) ongoing Energy Transition Mechanism (ETM) feasibility study for Southeast Asia,¹ to provide a broad indication of the main environmental and socioeconomic impacts and opportunities likely to arise because of energy transition in the region.

Between January 2023 and May 2024, ADB has undertaken an environmental and social baseline assessment and SESA scoping study for Philippines. The study included a review of existing data sources to understand national laws, regulations and guidelines and institutional and governance frameworks that are relevant to accelerated retirement of coal, deployment of renewable energy and related infrastructure and supply chains and mapping of key stakeholders and their interests.

Key environmental and social issues identified through the SESA scoping study and the proposed SESA approach were presented at the first stakeholder engagement workshop in August 2023, at the second workshop in September 2023 and the third workshop in March 2024. ADB, DOE and DENR plan to hold three one-day workshops in regional centres, most likely in Luzon, Visayas, and Mindanao, to consult on the key issues identified in the SESA scoping study. Stakeholders will include national, local, and municipal authorities, relevant government-owned corporations, civil society groups, resource users, indigenous peoples, coal mine and coal power plant workers, RE workers, women, and representatives of vulnerable groups to inform next steps and priority interventions to support a just and sustainable transition. This will enable stakeholders to present their perspectives and comment on key environmental and socioeconomic issues and concerns that should be taken into consideration during the planning of the next stages of the SESA. The consultations will also provide the opportunity to build capacity of stakeholders on the concepts, purpose, roles, steps of the SESA process, and its relevance to the Philippines’ environmental and social impact assessment process.

The SESA will adopt best international practice as set out in the Organisation for Economic Co-operation and Development (OECD) Guidance for Strategic Environmental Assessment (SEA) (2006) and the draft International Impact Assessment Association SEA Guidance for Renewable Energy.

II. The Strategic Environmental and Social Assessment and its Objectives

¹ [Accelerating the Clean Energy Transition in Southeast Asia: Regional Scoping Report for Strategic Environmental and Social Assessment Applied to the Energy Transition Mechanism in Southeast Asia | Asian Development Bank \(adb.org\)](https://www.adb.org/publications/accelerating-the-clean-energy-transition-in-southeast-asia-regional-scoping-report-for-strategic-environmental-and-social-assessment-applied-to-the-energy-transition-mechanism-in-southeast-asia)

The SESA aims to ensure that the potential significant environmental and socioeconomic impacts and opportunities associated with energy transition are identified and assessed together with measures for their mitigation, and that the results and recommendations are communicated to decision-makers. The SESA will consider impacts and opportunities associated with accelerated coal retirement, renewable energy deployment, associated infrastructure such as transmission network and battery storage and supply chains. Policy, regulatory and other mitigation measures recommended to prepare the country to manage environmental and social risks and opportunities associated with energy transition will be set out in a strategic environmental and social management plan (SESMP). The national SESA for Philippines will draw on lessons learned from the Indonesia SESA, which was carried out over the past year in support of the Indonesia CIF–ACT IP preparation.

III. Environmental, Social, and Regulatory Baselines

The following presents some of the key environmental and socioeconomic conditions and issues that have been identified through an initial review of national environmental and social baseline information, assessment of national laws, regulations and instruments, institutional and governance framework, associated policies, plans, and programs relevant to energy transition.

A. Energy Supply

Natural gas and coal remain the predominant indigenous fossil-fuel resources in the Philippines. In the Philippine Energy Plan 2023–2050, the Department of Energy (DOE) posits that inclusive and equitable economic growth is possible through secure, sustainable, and resilient energy strategies. The PEP sets the plans, policies and targets on renewable energy, natural gas, alternative fuels, and energy efficient technologies. The Clean Energy Scenario (CES) sets the share of renewable energy from 35% by 2030 to 50% by 2040 and greater than 50% by 2050. Renewable energy in the country has total potential capacity of 93.7 gigawatts (GW) as of March 2023. Renewable energy is headlined by offshore wind technology with 19 GW awarded contracts by 2050 under CES 1 and 50 GW by 2050 under CES 2.² Pumped hydro storage systems with capacity of around 11 GW is also in the pipeline of DOE. Laguna Lake is one of the locations being piloted for pumped hydro storage as well as floating solar power generation.

To boost the renewable energy sector and to meet the long-term climate targets, the Philippines has allowed full foreign ownership of renewable energy projects, including those involving exploration, development, and utilization of solar, wind, hydro, and ocean or tidal energy resources by virtue of DOE Circular No. 2022-11-0034. This became effective on 8 December 2022.

B. Environmental Issues

Air quality. The Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR) currently maintains a total of 75 air quality monitoring stations strategically set-up in 16 regions in the country. Out of the 75 monitoring stations, 34 stations have the capacity to perform continuous online monitoring while the rest are operated manually. These online monitoring stations log PM₁₀ and PM_{2.5}. Additionally, 15 stations are set up in eight

² Department of Energy. Philippine Energy Plan 2023-2050. Information Education Campaign (IEC) – Situationer and Outlook

regions that measure gaseous pollutants such as carbon monoxide (NO), nitrogen oxide (NO₂), and sulfur dioxide (SO₂). The results of ambient air quality monitoring are compared with the prescribed limits in the National Ambient Air Quality Standards (NAAQS) of the Philippine Clean Air Act (CAA) of 1999 or Republic Act 8749.

The annual ambient air monitoring data for 2022 showed that the maximum total suspended particulates (TSP) concentration in the country was 457 micrograms per normal cubic meter (µg/Ncm) which exceeded the one-hour standard. Exceedance in TSP levels was recorded from 50 monitoring stations. Areas with high TSP levels are those in urban areas. From 2005 to 2020, the TSP concentration mostly exceeded the annual guideline value. The values peaked in early 2000 and slightly decreased toward 2010. Elevated values were documented from 2015 while significant low values were noted in 2020, owing to reduced activities due to the lockdown during the coronavirus disease (COVID-19) pandemic.

In general, greenhouse gas (GHG) emissions in the Philippines are low but are on an upward trend. In 2018, the total emissions accounted for about 0.8% of the regional emissions in East Asia and about 0.3% of the world's total emissions.³ The energy sector contributed 54% of total emissions while agriculture is the second largest source. Urban air pollution is contributed by the transport sector which is the biggest fossil-fuel consuming sector in the country.

Climate change. The Philippines is a signatory to the Paris Agreement and was able to develop its nationally determined contributions (NDC) that aims to reduce the country's 2030 GHG emission by 75%⁴. For the energy sector, it targets a 2.8% reduction which is equivalent to GHG emission reduction of about 45.9 metric tons of carbon dioxide equivalent (MTCO_{2e}) or about 1.37% of the country's NDC target.

GHG emission from coal-fired power plants registered 56.6% share or 73.9 MTCO_{2e} for 2021, up by 4.1% from 2020 level of 71.0 MTCO_{2e}. Coal utilization (both by coal-fired power plants and cement manufacturing) contributed the largest share of total GHG emission at 56.8% share which translated to 74.0 MTCO_{2e} in 2021.

Based on fuel source in 2021, coal has the highest share of GHG emissions with a 56.8% share, oil contributes 38.2%, and natural gas by 5.1%. To address the impacts of climate change from GHG emissions, the energy sector is diversifying fuel sources through intensification of renewable sources utilization.

Climate. The Philippines has a humid equatorial climate that is characterized by relatively high temperature, high humidity, and abundant rainfall. Rainfall distribution varies throughout the country, depending on the direction of the moisture-bearing winds and the location of the mountain systems. Typhoons influence rainfall, humidity, and cloudiness in the country. An average of 20 typhoons hit the country yearly. These typhoons generally originate in the region of the Marianas and Caroline islands of the Pacific Ocean. However, in the last few decades, extreme weather, particularly tropical cyclones, have changed their paths toward more southern entry points.⁵

³ World Bank Group. Country Climate and Development Report. 2022

⁴ DOE. 2020. *Philippine Energy Plan 2020-2040*. Manila.

⁵ Philippine Atmospheric, Geophysical and Astronomical Services Administration. "Climate of the Philippines." <https://www.pagasa.dost.gov.ph/information/climate-philippines>

The Philippines is especially vulnerable to climate change. Large rainfall from typhoons or depressions or local storm rainfall has caused natural disasters such as floods, flashfloods, sediment flow (including debris flow, mud flow), landslide, and storm surge. From 1951–2015, the mean temperature increase in the country was 0.68°C, increasing by 0.1°C per decade. Rainfall increased by more than 20 millimeters (mm) /decade from December to February in the eastern parts of the country while in some parts a decrease of more than 20 mm/decade was experienced particularly during the dry months of March to May. Highly destructive typhoons with wind strengths above 170 kilometers (km) per hour is experienced in the country almost annually.⁶

Energy facilities and infrastructures have been affected by extreme weather events and other natural calamities. Systems that are most vulnerable to hazard due to typhoons are wind and solar power plants and transmission and distribution lines. Power outages cost the country 107.4 million consumer-hours in 2021, which is approximately a 10% increase from 97.2 million consumer-hours in 2015.⁷ Extended power outages caused by storms and other environment-related factors are more concentrated in Luzon than in Visayas and Mindanao. Damage is primarily due to toppling of poles and power lines from strong winds.

Super Typhoon “Rolly” (Goni) entered the Philippine area of responsibility in October 2020 with maximum sustained winds of 225 km/hr near the center and gustiness of up to 310 km/hr before making landfall in Bato, Catanduanes. The typhoon brought catastrophic violent winds and intense torrential rainfall over Catanduanes, Camarines Norte, Camarines Sur, Albay, and southern portion of Quezon province. This caused power outages in several areas in its path and badly damaging the National Power Corporation (NPC) Small Power Utilities Group (SPUG) facilities in Catanduanes. About 90% of the distribution lines in Catanduanes grid were damaged. In November 2020, Typhoon “Ulysses” with maximum sustained winds of 150 km/hr near the center and gustiness of up to 205 km/hr brought heavy rains and strong winds in Central Luzon and nearby provinces including Metro Manila. The heavy rains caused severe flooding and increased the water level of dams which triggered the release of large volumes of water. This resulted in the widespread flooding in Cagayan province and power outages in the Bicol Region.

Water resources. The NPC manages 11 watersheds in the country for hydropower generation. Five are in north Luzon (Angat, Magat, Pantabangan-Carranglan, San Roque, and Upper Agno River); four in south Luzon (Buhi-Barit, Caliraya-Lumot, Makiling-Banahaw, and Tiwi) and two in Mindanao (Lake Lanao Agus River, and Pulangi). These watersheds were established by law or executive orders to support the operation of vital infrastructures for hydroelectric power generation as well as for irrigation, flood control, and other related uses.

There are 79 lakes in the country. The Laguna de Bay in Luzon is the largest lake in the Philippines with a total area of 90,000 hectares. It is primarily used for fisheries production (aquaculture), domestic water supply, navigation, hydropower generation, and irrigation. In May 2023, the DOE gave approval for the development of six large-scale floating solar projects in Laguna Lake with a total capacity of 610.5 megawatts (MW).

Marine Renewable Energy (MRE) has high potential in the Philippines based on available resources, i.e., 178 GW of offshore wind potential; 266 GWp of marine floating solar potential (in

⁶ Philippine Atmospheric, Geophysical and Astronomical Services Administration. “Climate of the Philippines.” <https://www.pagasa.dost.gov.ph/information/climate-philippines>

⁷ Francisco, Kris. 2022. *Electricity Supply Interruptions in the Philippines: Characteristics, Trends, Causes*. Manila: Philippine Institute for Development Studies. December

only 1% of bays and coastal areas), and 40 GW to 60 GW of marine tidal in-stream capacity energy potential (35 terawatt-hours [TWh] per year) as estimated by Buhali, et.al. (2012).⁸

The World Bank (2005) reported that the Philippines has a potential wave energy resource of 33 kilowatts per meter per year (kW/m/yr) from the Pacific and 35 kW/m/yr from the West Philippine Sea. Such potential was estimated to significantly contribute to 35% renewable energy target in the power generation mix by 2030 and to increase it further to 50% by 2040 set by the National Renewable Energy Program (NREP). MREs being considered are: offshore wind, marine solar, ocean RE including currents, ocean thermal energy converters (OTEC), tidal range and barrages, and salinity gradient.

Solid and hazardous waste management. As of 2021, there are 189 sanitary landfills servicing a total of 399 local government units in the Philippines.⁹ As of May 2023, there are a total of 178 hazardous waste treatment, storage and disposal (TSD) facilities nationwide that are registered by the DENR-EMB.¹⁰ Luzon Island has the greatest number of TSDs but these are primarily located in Metro Manila, Central Luzon, and Cavite-Laguna-Batangas-Quezon (CALABARZON) provinces in Region 4A. In Visayas, the hazardous waste TSDs are located in the provinces of Aklan, Cebu, Negros Occidental, and Leyte. The TSDs in Mindanao are in the provinces of Zamboanga del Sur, Misamis Oriental, Bukidnon, Lanao del Norte, Davao del Norte, Davao del Sur, Sultan Kudarat, South Cotabato, and Surigao del Norte. There are no registered TSD in Bangsamoro Autonomous Region of Muslim Mindanao (BARMM).

Hazardous wastes generated by CFPPs, mines, and renewable energy projects are required to be disposed through TSD facilities and transporters that are registered by the DENR-EMB. The power plants provide temporary hazardous waste storage facilities while waiting for disposal through the registered TSD facilities. Some of the power plants partner with ABS-CBN Lingkod Kapamilya Foundation, Inc. (ALKFI) to support the “Bantay Baterya” and “Bantay-Langis” projects which reprocess junk lead-acid batteries and used oil through recycling. The participating power companies receive the Certificate of Treatment (COT) that is recognized by the DENR-EMB.

Geology and geologic hazards. The intrinsic geographic location and physical conditions of the country make it prone to various natural geologic hazards such as volcanic eruptions, earthquakes, and other natural catastrophes that cause substantial damage to infrastructures. The country is located between two tectonic plates (Eurasian and Pacific) which continually move, causing both volcanic events and earthquakes. The coastal areas in the country particularly those facing the Pacific Ocean, South China Sea, Sulu Sea, and Celebes Sea can be affected by tsunamis that may be generated by local earthquakes (Phivolcs, 2022). The geologic hazards in the development of renewable energy and other power development projects require consideration and detailed assessment of seismological, paleo-seismic, volcanological and engineering studies.

The country is prone to earthquakes that impacts the reliability of indigenous resources and energy infrastructures. Earthquakes cause power supply fluctuation or loss of power such as the case in Davao de Oro when an earthquake with magnitude 5.9 followed by landslides caused damage and province-wide power outage in March 2023. In August 1976, a strong earthquake

⁸ Buhali, M., Ang, M. R., Paringit, E., Villanoy, C., & Abundo, M. (2012). Tidal in-stream energy density estimates for pre-identified sites in the Philippines using a tide height difference-based metric. 2012 11th International Conference on Environment and Electrical Engineering. <https://doi.org/10.1109/eeeic.2012.6221450>

⁹ Solid Waste Management Division of National Solid Waste Management Commission (NSWMC).

¹⁰ DENR-EMB. List of Registered Treatment, Storage, and Disposal (TSD) Facilities. <https://emb.gov.ph/wp-content/uploads/2023/06/TSD-as-of-31-May-for-posting.pdf>

followed by tsunami in Mindanao devastated more than 700 kilometers of coastline bordering Moro Gulf in the North Celebes Sea that caused massive destruction and power interruption. A 6.5 magnitude earthquake in Eastern Visayas in July 2017 caused damage to the geothermal plants of Energy Development Corporation (EDC), substations and transmission lines that resulted in more than 10 days of power outage in three island provinces of Samar, Leyte, and Bohol.

The supply of coal from the open pit coal mines of Semirara Mining and Power Corporation (SMPC) in the Municipality of Caluya, Antique suffered from landslides for many years. Fatalities were recorded in major landslide disasters in February 2013 with 5 deaths and in July 2015 with 9 deaths and 5 missing workers. In the aftermath of the February 2013 landslide, the DOE ordered the suspension of mining operations for 4 months.¹¹

The country has about 300 volcanoes, of which 24 are classified as active and six are classified as highly active. The Philippines' location along the tectonic blocks creates high heat flow in some regions that are potential sources of geothermal power. Malapitan, et. al (2000) concluded that the collision of Philippine Plate and Eurasian Plates have given rise to deep trenches, faults, volcanoes, plutons, and similar geological and structural features common in an island arc system. These features are essential components in the development of geothermal resources nationwide.

Biodiversity and protected areas. The Philippines is a country rich in biodiversity and natural resources. The country is recognized as one of the “biodiversity hotspots” in the world. It has 228 Key Biodiversity Areas (KBAs) which are home to 855 globally important species of plants, mollusks, elasmobranchs, fishes, amphibians, and reptiles. There are 248 declared protected areas, covering a total area of about 7,797,143.17 hectares (BMB 2022). The terrestrial protected areas cover 4,620,000 hectares while the marine protected areas cover about 3,140,000 hectares. Seven sites featuring outstanding biodiversity while providing livelihood opportunities to nearby communities are in the list of Wetlands of International Importance or the Ramsar List.

There are power generation projects located in protected areas such as the geothermal projects in Mt. Kanlaon Natural Park in Negros, Mt. Apo Natural Park Mindanao, Naujan Lake National Park in Oriental Mindoro, and the Bulusan Volcano Natural Park in Sorsogon. Geothermal explorations are likewise proposed at the Northern Negros Natural Park in Negros Occidental and in Mt. Talinis or Cuernos de Negros in Negros Oriental. Based on the National Integrated Protected Areas System (NIPAS) Act, any exploitation and utilization of energy resources found within NIPAS areas are allowed only through passage of law by Congress.

The establishment of CFPPs in highly vegetated areas has caused the removal and loss of habitat, even affecting the native and endemic species, and has threatened its abundance, frequency and distribution. SO₂ and NO_x emissions are key pollutants in acid rain formation which eventually impact water bodies where various niches may react as well as inland and coastal ecosystems. Moreover, the deposition of nitrates caused algal blooms that subsequently resulted to the reduction in biodiversity.

Health. In the 2020 Philippine Health Statistics report (PHS)¹², acute respiratory tract infection (ARTI), hypertension, and urinary tract infection maintained their ranking as the top three leading

¹¹ Philippines – Scoping Exercise for Just Transition (Draft Report prepared by World Bank)

¹² 2020 Philippine Health Statistics (PHS). Department of Health (DOH).
https://doh.gov.ph/sites/default/files/publications/2020PHS_FINAL_PDF.pdf

causes of deaths. There are high respiratory diseases recorded in Region III, the region with the greatest number of on-grid conventional energy power plants and Region V, the region with many off-grid conventional energy power plants.

C. Social Issues

Land use / land use change. In the Philippines, ecosystems have changed rapidly over the last decades. This is largely attributed to: large scale conversion of forests and grasslands into cropland; the development of settlements and mining areas; diversion and storage of freshwater for dams; pollution of rivers and lakes from domestic and industrial effluents, and the loss of mangrove and coral reef areas. Poverty has prompted an increase in land conversion from forestlands to agriculture, and led to overfishing and use of destructive fishing practices that cause irreparable damage to coral reefs.

Population. The 2020 Census of Population and Housing (2020 CPH) posted total population as of 1 May 2020 to be 109,035,343.¹³ Of the 17 administrative regions, Region IV-A (CALABARZON) had the largest population with 16.20 million, followed by the National Capital Region (NCR) with 13.48 million, and Region III (Central Luzon) with 12.42 million. The household population comprised 99.7% (108.67 million) of the Philippines' total population. In 2020, 54% (58.93 million) of the Philippine population lived in urban barangays. Of the 81 provinces, 11 provinces registered a level of urbanization higher than the national level in 2020 (54%).

Electrification rate. The Philippines' electrification rate as of December 2022 is 96.2%.¹⁴ This indicates that roughly 879,232 households still do not have access to power. Among the major islands, Luzon has the highest household electrification level at 98.9% with Visayas closely following at 97.6%. Meanwhile, Mindanao's electrification level is at 88.1%. The 2020 Philippine Statistics Authority's Census of Population points out that households in urban regions are more likely to have access to electricity than those in rural areas do; 96.1% of urban households have access, compared to only 84.3% of families in rural areas. This gap in access to power is caused by a number of things, including the high expense of extending electricity infrastructure to remote places, the scarcity of resources available to the government, and the difficulties in reaching populations in remote, difficult-to-reach locations.

Poverty. Based on the 2021 Family Income and Expenditure Survey (FIES), the poverty threshold among the population was PHP 2,406 (\$43.74) which meant that a Filipino needed at least the same amount of money on average, per month to meet his/her basic food and non-food needs. The 2021 national poverty incidence (PI) for the country was 18.14%, which translates to 19.9 million poor Filipinos, up from 16.7% (17.7 million) in 2018.

Poverty and energy type. Based on provincial poverty incidence (PI), most or 61% of the powerplants in the country are in provinces with PI above the national rate of 18.14%. There are 228 plants comprising of 164 on-grid and 64 off-grid plants that are in provinces less than or equal to the national poverty incidence ($PI \leq 18.14$). The 164 on-grid powerplants in low poverty incidence areas consist of hydroelectric (48), solar (34), geothermal (4), natural gas (6), and wind (6) while there are 48 coal and oil power plants. Most plants located below or equal to the overall country's PI are found in Luzon, 181 units.

¹³ Government of the Philippines, Philippine Statistics Authority. 2021. [Highlights of the Philippine Population 2020 Census of Population and Housing \(2020 CPH\)](#). 13 July.

¹⁴ Based on 2015 Census of Population; DOE. Key Energy Statistics | Department of Energy Philippines (doe.gov.ph)

Local government unit income class. Among the on-grid power plants in Luzon, conventional energy (coal, oil, and natural gas) and a majority of renewable energy (geothermal, biomass, and solar) are mainly concentrated in 1st income class municipalities. On the other hand, half of wind energy facilities are established in 4th class municipalities. Existing hydroelectric facilities are interspersed across municipalities with different income classes: 1st class (33%), 2nd class (29%), 3rd class (17%), 4th class (17%), and 5th class (13%). Among the off-grid power plants in Luzon, 100% of wind and the energy storage system (ESS) are in 1st income class municipalities, while 100% of coal facilities are in 4th class municipalities. More than a majority (67%) of solar energy are situated in 3rd class municipalities, while the remainder (33%) are in 1st class municipalities. One-fourth (25%) of hydropower facilities are evenly distributed in 1st, 3rd, 4th, and 5th income class municipalities. Meanwhile, oil facilities are interspersed across municipalities with different income classes: 1st class (26%), 2nd class (13%), 3rd class (23%), 4th class (16%), 5th class (18%), and 6th class (4%).

Labor and employment. The energy sector in the Philippines is a significant source of employment and economic growth. According to the DOE, the energy sector accounted for approximately 82,000 jobs in 2020. The majority of these jobs are in the power generation subsector, which includes power plants and renewable energy facilities. The power generation subsector is responsible for more than 60% of the total jobs in the energy sector. Other subsectors include oil and gas, coal, and downstream oil. As the Philippines seeks to expand the proportion of renewable energy in its energy mix, the country's renewable energy power projects have the potential to generate significant employment opportunities.

Wages. According to data from the Bureau of Local Employment, as of 2020, the average monthly salary for workers in the oil and gas industry in the Philippines is around PHP39,000 (\$709). In the renewable energy sector, workers in solar and wind power generation typically earn between PHP20,000 (\$364) to PHP50,000 (\$909) per month, depending on their job and level of experience.

Gender. Women encounter various layers of discrimination that often intersect,¹⁵ including instances involving impoverished women, women with disabilities, indigenous and Muslim women, women residing in remote areas, and women as part of the LGBT+ community. In fact, women experienced a higher poverty rate compared to the overall population in 2012, estimated at 25.6%. Societal norms introduce further vulnerabilities, as unequal power dynamics exist between women and men.

Among the Southeast Asian (SEA) countries, the Philippines has already achieved its ambitious objective of closing the gender gap and has attained the highest ranking in the SEA region, in terms of economic involvement, political empowerment, and educational achievements.¹⁶ The Philippines has a robust organizational culture promoting women's empowerment. Furthermore, there are national laws¹⁷ and policies regarding gender that have been enacted, enforced, and integrated into the policies and practices of various institutions, including ministries, state-owned enterprises, and both public and private sectors. The oil and gas sector employs the greatest

¹⁵ National Economic and Development Authority. 2017. *Philippine Development Plan 2017-2022*. Retrieved from: <https://pdp.neda.gov.ph/philippine-development-plan-2017-2022/>

¹⁶ United States Agency for International Development. n.d. *Assessment of Women's Participation in the Energy Sector in Southeast Asia*. USAID/RDMA Enhancing Equality in Energy for Southeast Asia (E4SEA) Activity (Executive Summary and Main Report). Retrieved from: https://pdf.usaid.gov/pdf_docs/PA00ZRKS.pdf

¹⁷ The Philippines Magna Carta of Women (Republic Act No. 910) and the Philippine Commission on Women (PCW) constitute the most comprehensive national legislation and gender-related institution for the promotion of gender equality and the empowerment of women.

number of women (32.7%) followed by the metals sector with 11.92% (5,507 women), non-metals sector with 10.61% (796 women) and the mining and quarrying sector, 4.3% (3,951 women).¹⁸

There is research that indicates that renewable energy can increase access to modern energy services and free women time from domestic tasks, allow home study and reading, enabling accessibility to educational media and communication, mitigates impacts of indoor air pollution on women, better access to medical facilities for maternal care (refrigeration and sterilization), and enables income generation activities—all of which contribute to improving gender equity.¹⁹

The transition from coal to renewable energy would have implications for labor.²⁰ Restructuring of the mining sector and changing of trade patterns entails significant large-scale job losses that can affect women in terms of employment, increased burden of domestic responsibilities when men/husbands lose their employment, intra-household tensions, and migration growth due to mine site closures.

Migration and resettlement. Based on the 2018 National Migration Survey (NMS 2018), 40.1% of Filipinos aged 15 and older are lifetime migrants²¹. Among them, females (43.3%) exhibit a relatively higher tendency for migration compared to males (36.8%).²² The unequal distribution of the Philippine population and economic prospects leads to disparities between urban and rural areas, each offering distinct employment and non-employment possibilities. According to the 2018 NMS results, rural-to-rural migration is the most prevalent (49%), followed by migration from rural to urban areas. There is a slight predominance of females involved in rural-to-rural migration while more males are involved in rural to urban migration.

A study conducted by Nantes (2004) involving the Mirant Power Plant (formerly Hopewell Inc.) in Pagbilao, Quezon, and the San Roque Multi-Purpose Dam Project in San Manuel, Pangasinan,²³ suggest that certain gaps need to be addressed when considering the overall development impact on barangays directly affected by the projects. The study concluded that displacement experienced by individuals affected by these projects has led to impoverishment and marginalization due to the loss of their traditional livelihoods, the deprivation of access to resources and productive lands, and the resulting issues of unemployment and underemployment.

Indigenous peoples. The Census of Population and Housing (CPH) for 2020 estimates that of the Philippine total population, 8.7% (9.46 million) are indigenous peoples, further broken down into 8.21 million indigenous peoples (7.6%) and 1.25 million indigenous peoples and Muslim tribes (1.1%). Muslim tribes represent 5.87 million (5.4%). There are about 1,531 ancestral domains in the country covering an estimated 25,950,000 hectares that include ancestral waters, representing about 44% of the total land area of the Philippines. (NCIP, 2022)

¹⁸ World Bank. Philippines Mining Sector Diagnostic (MSD), 2020 and Philippines Extractive Industries Transparency Initiative (PH-EITI).

¹⁹ Clancy, J., Oparaocha, S., & Roehr, U. 2012. Gender equity and renewable energies. In *Renewable Energy* (pp. 290-306). Routledge.

²⁰ Cunningham, Wendy; Schmillen, Achim. 2021. The Coal Transition: Mitigating Social and Labor Impacts. *Social Protection and Jobs Discussion Paper* No. 2105. Washington, DC: World Bank. <http://hdl.handle.net/10986/35617>

²¹ one whose current area of residence and area of birth differ, regardless of intervening migrations

²² Government of the Philippines, PSA. 2020. 2018 National Migration Survey. Retrieved from:

<https://psada.psa.gov.ph/catalog/NMS/about>

²³ Zoleta-Nantes, Doracie. 2004. [Development-Induced Displacement, Resettlement Experiences And Impoverishment, And Marginalization In Pagbilao, Quezon And San Manuel, Pangasinan](https://serp-p.pids.gov.ph/Publication/Public/View?Slug=Development-Induced-Displacement-Resettlement-Experiences-And-Impoverishment-And-Marginalization-In-Pagbilao-Quezon-And-San-Manuel-Pangasinan). Cids-Ppj-Ja-082-003. <https://serp-p.pids.gov.ph/Publication/Public/View?Slug=Development-Induced-Displacement-Resettlement-Experiences-And-Impoverishment-And-Marginalization-In-Pagbilao-Quezon-And-San-Manuel-Pangasinan>

According to the 2020 CPH, of the top 10 populous indigenous peoples' groups in the country, six are situated in Mindanao and four in Luzon. The four largest indigenous peoples' groups are: the Subanen (also known as Subanon) of Zamboanga Peninsula with approximately 758,000, followed by the Manobo or Manuvu of the SOCCSKSARGEN provinces with about 644,000, the Mandaya of Davao provinces and Surigao del Sur (523,472), and the Kankaney of CAR (466,961). Other populous groups are the Ibanag of Isabela and Cagayan provinces, Higaonon of north-central Mindanao, the Sama (also known as Samal) of the Sulu Archipelago and Tawi-Tawi, the Cuyunen or Cuyunon people of Palawan, the B'laan people of Davao region, and the Itawes of Cagayan Valley.

Most issues faced by indigenous peoples and their ancestral lands are related to threats to food security and livelihoods because of land loss, some of which are associated with renewable energy development, industrial encroachments, and exclusion of indigenous peoples' interests.²⁴

Energy developments, specifically geothermal, impact the culture and lives of indigenous peoples, particularly during construction when dust, noise, visual impacts, and habitat destruction can affect traditional practices and religious and cultural sites²⁵. The state of indigenous peoples in the energy situation is rooted in the historical and ongoing exploitation, inequality, and poverty as indigenous peoples' communities have been unrightfully and forcefully dispossessed from their lands and sources of livelihood, relocated to unfamiliar areas, and left with small to no access to mainstream energy resources. There has also been an increase of cases where empowered indigenous peoples are advocating for energy development that is environmentally sustainable, accessible, and economically self-sufficient.

D. Legal and Regulatory Issues

In the Philippines, the main sources of laws and legal rights are the following: (i) the 1987 Constitution, (ii) statutes and international treaties or agreements, and (iii) decisions of the Supreme Court of the Philippines. Section 16, Article II of the Constitution is the primary provision that provides for environmental rights within the Philippine jurisdiction. This provision continues to be the standard that guides lawmakers in legislating on environmental protection and management, as well as the courts in ruling on cases that involve issues of environmental harm. Included here are cases and disputes involving natural resource utilization, which includes energy resources such as coal and other fossil fuels.

Significantly, a recent Department of Justice (DOJ) opinion noted that renewable energy resources—such as solar, wind, geothermal, and hydro, among others—are not the same as other natural resources contemplated in the Constitution. They are *sui generis*, a class on its own. The DOJ opinion means that since RE resources are not like the traditional natural resources

²⁴ Zoleta-Nantes, Doracie. 2004. *Development-Induced Displacement, Resettlement Experiences And Impoverishment, And Marginalization In Pagbilao, Quezon And San Manuel, Pangasinan*. Cids-Ppj-Ja-082-003. <https://Serp-P.Pids.Gov.Ph/Publication/Public/View?Slug=Development-Induced-Displacement-Resettlement-Experiences-And-Impoverishment-And-Marginalization-In>

²⁵ Zoleta-Nantes, Doracie. 2004. *Development-Induced Displacement, Resettlement Experiences And Impoverishment, And Marginalization In Pagbilao, Quezon And San Manuel, Pangasinan*. Cids-Ppj-Ja-082-003. <https://Serp-P.Pids.Gov.Ph/Publication/Public/View?Slug=Development-Induced-Displacement-Resettlement-Experiences-And-Impoverishment-And-Marginalization-In>

contemplated in the Constitution, then the ban on foreign investment and participation in RE projects does not apply to energy activities of RE resources. Despite the positive message to investors, there is a possibility that the DOJ opinion will be challenged as being against the constitutional provision limiting ownership of natural resources projects to Filipino citizens. The opinion can be overturned or reversed by a law or Supreme Court order or decision interpreting the matter, causing uncertainty for investors in renewable energy projects.

Energy regulation. The energy sector is one of the most heavily regulated industries in the Philippines because the public interest is involved, and any changes in the industry could affect consumers, households, businesses, and domestic and foreign investments. Fluctuations or movement in the industry – be it in laws, policies, pricing, and implementation—could not only mean financial or economic repercussions, but also potential social and environmental impacts.

The Philippines has recognized the impact of high dependence on fossil fuels and exposure to price fluctuations, and the importance of balancing sustainable economic growth with protection of public health, the natural ecosystem, and the environment, on matters concerning energy production. Because of these, the Philippine government started looking into the development and use of renewable energy. This led to laws such as the Biofuels Act of 2006 (RA 9367) and the Renewable Energy Act of 2008 (RA 9513).²⁶ The RE laws offer different fiscal incentives to attract/encourage investments in RE, such as: income tax holiday, duty free importation of machinery and materials, 0% value added tax, and the feed-in-tariff (FiT) scheme. The FiT system is internationally recognized as the most cost-effective measure to “achieve higher deployment of RE technologies.”

Moratorium on new greenfield coal-fired power plants. In 2020, the DOE declared a moratorium on endorsements for greenfield coal power plants to promote sustainable energy sources.²⁷ The aim of the moratorium is to support DOE policy aims of improving energy sustainability, reliability, and flexibility. This is to be done by promoting RE and new technologies, increasing system flexibility, and adhering to higher environmental standards. Existing and operational CFPPs, and those committed projects or those existing with firm expansion plans were not affected by this issuance.

A 100% foreign ownership of renewable energy projects. In November 2022, the DOE issued Circular No. 2022-11-0034, which amended the previous Implementing Rules and Regulations (IRR) of Republic Act 9512 or the Renewable Energy Act. Under the previous IRR, the exploration, development, and utilization of solar, wind, hydro, and ocean or tidal energy sources could only be undertaken by Filipino citizens or entities that are at least 60% Filipino-owned. Due to the amendments under Circular No. 2022-11-0034, 100% foreign ownership of renewable energy projects is now possible. Entities already operating in a joint venture with a Filipino partner may now also take a controlling stake in the said venture.²⁸

Regulations on coal-fired power plants and coal mines. Coal operations in the Philippines are governed by Presidential Decree 972 (PD 972) or the Coal Development Act of the Philippines, as amended by Presidential Decree 1174 (PD 1174). The said law provides for the active and

²⁶ Rosellon, M. 2017. [The Renewable Energy Policy Debate in the Philippines](#). *Philippine Institute for Development Studies Discussion Paper Series No. 2017-17*. Manila.

²⁷ See press release: <https://www.doe.gov.ph/press-releases/doe-sec-cusi-declares-moratorium-endorsements-greenfield-coal-power-plants>; and DOE Announcement: <https://www.doe.gov.ph/sites/default/files/pdf/announcements/advisory-moratorium-endorsement-greenfield-coal-fired-power%20project.pdf>

²⁸Energy Tracker Asia. [Renewable Energy Projects in the Philippines: 100% Foreign Ownership Authorised](#).

systematic exploration, exploitation, development, disposition, and utilization of Philippine coal resources. These decrees introduced “The Philippine Coal Service Contract System” and established the appropriate guidelines for coal operations. Under these guidelines, the Philippines retains ownership of the government through the coal contract system, is assigned the right to explore, develop, exploit, and market the coal.²⁹ DOE Department Circular No. DC 2018-12-0028 (Series of 2018), provides for the Coal Mine Safety and Health Rules and Regulations, compatible with the provisions of the International Labour Organization Convention on Safety and Health in Mines (ILO C176).

Environmental laws. Some of the Philippines’ most significant environmental laws are the Philippine Environmental Impact Statement System (PEISS) (PD 1586), Toxic Substances and Hazardous and Nuclear Waste Control Act (RA 6969), Expanded National Integrated Protected Areas System (E-NIPAS Act) (RA 7586), Philippine Clean Air Act (RA 8749), Ecological Solid Waste Management Act (RA9003), Philippine Clean Water Act (RA 9275), Marine Pollution Decree (PD 979), Philippine Disaster and Risk Reduction Management Act (RA 10121), Climate Change Act (RA 9729), among others.

In the last 3 decades, the Supreme Court has emphasized the importance of Article II, Section 16 of the Constitution, which is the primary provision for environmental rights in the country. In the landmark case *Oposa v. Factoran*, minors were ruled to have the disposition to sue based on the concept of intergenerational responsibility insofar as the right to a balanced and healthful ecology is concerned. In 2010, the Supreme Court officially released its Rules of Procedure for Environmental Cases which allows for the issuance of special environmental writs such as the *Writ of Kalikasan*, a remedy to plead for when one’s constitutional right to a balanced and healthful ecology is violated or threatened, and the *Writ of Continuing Mandamus*, which may be requested for when a government agency, instrumentality, or officer unlawfully neglects the performance of an act which the law specifically enjoins as a duty in connection with the enforcement or violation of an environmental law or right, or unlawfully excludes another from the use or enjoyment of such right. An example is the Supreme Court’s Writ of Continuing Mandamus on Manila Bay in 2008 which directed 13 government agencies to clean up, rehabilitate, and preserve Manila Bay, and restore and maintain its waters to make it fit for swimming, skin-diving, and other forms of contact recreation. All agencies as mandated by law continue to work on the improvement of the bay based on their respective mandates. The said, writs have on many occasions been invoked by environmental advocates in challenging CFPPs, and other energy-related activities that cause harm to the environment and the people. However, there have been several Supreme Court cases which in fact have been unsuccessful (i.e., the projects were allowed to proceed). Nonetheless, the rules provide for an avenue to seek redress and remedies.

Social laws. Several social laws are also relevant and related to an energy transition, given the significant and potential impact of the same on the energy sector, but other industries and sectors of society as well. Some of the major social laws are: Labor Code of the Philippines (PD 442), Occupational Safety and Health Standards *RA 11058), Indigenous Peoples Rights Act (IPRA) (RA 8371), Urban Development and Housing Act (RA 7279), National Cultural Heritage Act (RA 10066), and Local Government Code (RA 7160).

E. Stakeholder Mapping

Stakeholder mapping provides an opportunity for all relevant stakeholders to engage in the SESA process and to identify potential impacts and management measures. This includes civil society

²⁹ Government of the Philippines, Department of Energy. [The Philippine Coal Contract System](#).

and affected communities. Stakeholder mapping conducted for the SESA of the energy transition in the Philippines identified key stakeholder groups representing government agencies, the private sector, as well as civil society institutions.

In terms of environmental management, the Department of Environment and Natural Resources (DENR) serves as the primary government agency responsible for the conservation, management, development, and proper use of the country's resources. The National Commission on Indigenous Peoples (NCIP) is the agency responsible for protecting the rights of the indigenous peoples of the Philippines. There are other departments and agencies responsible for implementing environmental and social safeguards in the country. These are described in Table 27, at the end of this appendix.

A fundamental principle of SESA is to involve key stakeholders and encourage public involvement throughout the SESA process. A stakeholder engagement plan would be developed based on initial stakeholder mapping, which has identified key stakeholders including government agencies (national; local city, municipality, province), civil society organizations (CSOs), nongovernment organizations (NGOs), labor organizations, local communities, marginalized groups (e.g., indigenous peoples, women), academe, technical experts, etc. The list of stakeholders is outlined in Table 28, at the end of this appendix.

Opportunities will be provided throughout the entire SESA process for all stakeholders to present their perspectives on the energy transition, to identify and validate key issues, and to comment on draft documents prepared for the SESA. This input will be through workshops, focus groups and key informant interviews undertaken at national to local levels.

IV. Impacts and Risks

Expert judgment by the SESA scoping baseline team has found that the key environmental and socioeconomic issues that will need to be addressed by the Philippine SESA are closely aligned with those identified during the regional scoping exercise. These are summarized as follows:

A. Coal Transition and Repurposing

Opportunities. Air pollution is considered as one of the main concerns in the energy industry as it potentially creates a significant impact on the health and welfare of the surrounding communities as well as of the power plant workers. Consequential effects typically yield corresponding economic and health setbacks. There are clear environmental benefits to CFPP transition and uptake of renewable energy in terms of avoidance of GHG emissions. Overall, the retirement of CFPP will reduce GHG and pollutant emissions, improve air quality, and result in health benefits. Coal-fired power plants in the Philippines utilize either pulverized subcritical technology or the Circulating Fluidized Bed (CFB) technology, which releases toxins and pollutants that include mercury, lead, sulfur dioxide, nitrogen oxides, particulates and various heavy metals during combustion of coal. Retirement of CFPPs will avoid health diseases ranging from asthma and breathing difficulties to more serious illnesses such as heart diseases, cancer, neurological disorders, and premature death.

Energy transition would help the country meet its commitments under the Paris Agreement. The transition from coal and fossil fuel to renewable energy can contribute to global mitigation efforts to reduce GHG and create health benefits through reduced air pollution. The World Bank Group estimates that environmental damage cost under the accelerated decarbonization scenario (ADS)

would be reduced by about 86% in 2040 compared to business-as-usual scenario and by 80% compared with 2021.³⁰

Most CFPPs in the Philippines are in coastal areas because of convenience in coal, limestone and other commodity deliveries essential for the continued operation of the facilities. Therefore, included as components of these CFPPs are ports and jetties. During coal deliveries, coal spills and other raw material may occur in coastal waters which may have detrimental effects on water quality as well as on marine biological organisms. In addition, ships and barges discharge bilge water while docked at the port or jetty during materials unloading operations. Bilge water contains various industrial fluids like oil, coolant and lubricants which has a negative impact on water quality if disposal is not properly managed or treated. The closure of CFPPs will avoid these issues affecting water quality. Other positive impacts related to water quality on the retirement of CFPPs are:

- avoid the discharge of heated water as well as degradation of water quality and decimation of marine organisms;
- stop the discharge of cooling waters to water bodies and the indirect impacts from contaminated dust in air emissions and from spillage of coal into water bodies;
- end the groundwater contamination from ponds and leaks. However, any remaining coal ash waste may contaminate nearby water bodies and lead to ongoing issues with local communities and fisherfolks who have been affected by discharges and runoff from the plant;
- allow the benthic community to flourish;
- contribute to improvement in water quality.

Environmental risks. Chimney stack emissions will be eliminated but coal ash from remaining storage stockpile at CFPP sites may continue to be concerns for local communities living in the vicinity of the facility, unless immediate removal and clean-up activities are undertaken. During CFPP decommissioning, environmental risks that need to be considered are primarily related to:

- waste management and disposal including hazardous wastes and redundant structures remaining at the facility;
- management of contaminated sites such as coal spills, ash disposal areas, coal storage areas, pollutants that has leached into land and groundwater;
- surface and groundwater pollution due to undisposed chemicals, hazardous materials, dumps, and spills and leaks;
- Toxic deposition, e.g., mercury from CFPPs which may have been deposited onto land (e.g., forest and scrublands), ocean and freshwater bodies, nearby residential, and built-up areas. Mercury deposition may cause accumulation of unsafe levels of mercury in fish; on cropland, toxicity is through the conversion of deposited inorganic mercury into methylmercury which can be easily absorbed by plants; and presence of toxic substances and radioactive heavy metals in fly ash which can be emitted into the air without proper management;
- Land contamination from acid deposition when SO₂ reacts with other atmospheric chemicals.

There remains a risk of GHG and pollutant emissions from industries such as cement manufacturing plants that are still relying on coal for power supply and other uses. In addition, coal formerly supplied to these CFPPs may also be exported and burned elsewhere. The latter would result in no net reduction in emissions.

³⁰ World Bank Group. 2022. Philippines Country Climate and Development Report. CCDR Series

Decommissioning of power plants may lead to large amounts of wastes including hazardous wastes that require proper disposal. There may be issues concerning regional cumulative impacts related to the handling and disposal of toxic wastes. There may be unremediated surface impoundments containing waste ash, slag, and sludge. There may be instances when ownership of ash ponds is shared between the CFPP and other parties. Unremediated impoundments would result in significant environmental risk and liability issues, deterring redevelopment of the land by future owners. Abandonment plans that take into account waste management and disposal will be needed prior to decommissioning.

The energy sector faces challenges from climate change. Key issues related to climate change are:

- **Changes in precipitation.** The severity of changing weather patterns, including the rate of precipitation, directly affects energy production and transmission. Reliability of hydropower plants are affected by changes in precipitation. During drought or El Niño seasons, the capacity of hydropower plants are significantly reduced. On the other hand, intense rainfall affects the operation of power plants, especially those that are in the coastal areas. Intense rain causes flooding and landslides, which can cause damage to energy infrastructure and cause electricity service interruption.
- **Increase in temperature.** Any rise in ambient temperature will affect available water for hydropower plants which may affect the plant's ability to generate the needed capacity, and eventually require plant shutdown. Offshore wind (OSW) projects are not susceptible to increases in mean temperature of 2 degrees or more, based on typical project specifications and key design drivers.³¹
- **Storm Events.** Electricity grids (transmission and distribution lines) may be damaged by strong winds and storms which affect electricity generation and services. Solar and wind energy are similarly much affected by the weather patterns brought about by climate change. The increased level of cloudiness would impact solar technologies while storms could damage the fragile solar equipment and also affect the area through flooding. Power plants using biofuel or bioenergy crops will also be affected as supplies may be hampered due to transport, poor yields, and unsuitable quality of raw material inputs.
- **Sea level rise.** Sea levels can affect energy infrastructure in the coastal areas and limit areas appropriate for siting of the power plants and grids in the country. OSW projects are not susceptible to increases in mean sea level of 1 meter or more based on typical project specifications and key design drivers.³²
- **Wind Speed.** The operation of wind power facilities will be affected by rapid changes in wind speed and can affect the stability of grids. There may be risk to availability of OSW should the long-term trend in mean wind speeds be downward. As reported by the World Bank, the northern waters in the country are more susceptible to higher wind speeds while lower risk is noted in southern waters. In the identified OSW development zones identified in the Philippines' OSW road map, the extreme wind speed is recorded at 70 meters/second (m/s), thereby indicating the typhoon class wind turbines (suitable for wind class for typhoons with gust wind speed of 80 m/s) will fit most OSW development zones

³¹ World Bank Group. 2022. Offshore Wind Roadmap for the Philippines.

³² World Bank Group. 2022. Offshore Wind Roadmap for the Philippines.

in the country.³³ However, extreme wind speed of 110 m/s in the north and eastern regions may pose higher risk.

Social risks. Land use changes and the energy sector have a direct and significant relationship with one another, especially as they relate to energy supply and demand. Nonrenewable energy projects affect current land uses. For instance, mining for coal or other minerals can cause soil erosion, water pollution, and habitat destruction. Additionally, oil and gas developments can contribute to air and water pollution, as well as the degradation of natural ecosystems.

Coal to clean energy transition could negatively impact labor markets, economies, community, and individual sources of livelihood especially in coal-centered regions. Most of the coal-centered regions have provinces located in high poverty incidences, higher than the national average. Given that most coal power plants are in areas with high poverty incidences, vulnerability will also increase during transition to RE plants due to lay-offs/ loss of source of livelihood, which will then have a flow-on effect to the wider economy.

There is also a significant number of oil-based power plants in the country (372 plants). Most of these are in areas with high poverty incidence. Areas with power plants receive community social responsibility (CSR) and ER 1-94 benefits and carbon offsets.³⁴ Social protection through CSR (i) extends protection of basic levels of consumption among those in poverty or at risk of falling into poverty, (ii) facilitates investment in human and productive assets, and (iii) strengthens agencies mandated with social protection to assist those in poverty to overcome unpleasant situations.

During the transition, communities may be susceptible to the risks of loss or decreased social protection benefits and/or standards. Those greatly affected would be those located in areas with high poverty incidence. Social protection standards are already low, and transition is expected to worsen if sources of public service are lost. Social protection from the national budget can increase in line with the Mandanas-Garcia Ruling and Executive Order 138 but that would still depend on the absorptive capacities of local government units and their responsible areas.

During coal retirement or repurposing, employment opportunities should be maintained in regions where production of coal is concentrated, addressed through a human-centered transition approach, and targeted through national support for the affected regions³⁵ as to not to increase poverty or worsen the vulnerability status of the people.

Other social risks that have been identified are:

- Legacy issues such as historic and outstanding unresolved socioeconomic issues that the CFPPs may have with the community or affected people(s), for instance, lack of compensation for land and property loss.
- Loss of livelihoods, income, and other economic opportunities, including those of indigenous peoples.
- Negative impacts on regional and national economies such as on coal supply chains and associated business activities that may be affected and who are dependent on coal supplies.
- Impact on electricity subsidies for host communities that are receiving benefits of 1 centavo per kwh.

³³ World Bank Group. Offshore Wind Development Program. Offshore Wind Roadmap for the Philippines. 2022

³⁴ ER 1-94 allocates Php 0.01 centavos per kWh of total electricity sales to host communities.

³⁵ Desiderio, L. 2022. ILO urges measures to mitigate impact of coal phaseout on jobs. *Philippine Star*. 28 May. <https://www.philstar.com/business/2022/05/28/2184185/ilo-urges-measures-mitigate-impact-coal-phaseout-jobs>

- Negative impact on gross domestic product (GDP) from reduced imports and exports of coal.
- Sustainability challenges due to loss of public services and infrastructure initiated through CSR programs of CFPPs and mines.
- Impact on national and international coal supply chains and associated business activities (possibly causing shortage of coal supplies).

B. Renewable Energy Projects

Opportunities. As natural resources play an important role in the development of the Philippines, the government is committed to improving the country's environmental quality and management of natural resources. In 2021, the Philippines through its NDC submitted in compliance with the Paris Agreement, committed to reduce 75% of its GHG emissions by 2030.³⁶ However, this ambitious target can only be met if the government increases its budget allocations for climate resilience, further build the capacity of local governments against climate change, and attract support from development partners, philanthropists, banks, financial institutions, and private investors toward funding climate-related initiatives.³⁷

The energy sector is recognized as a major contributor to the adverse effects of climate change, hence, making significant changes is one of the key solutions by which the effects of climate change and achieving the country's environmental goals can be met. In his first State of the Nation Address (SONA), President Marcos recognized the importance of a continuous supply of power to meet the nation's growing demand, efficiency of transmission and distribution, and sustainable and renewable power sources. The president also stated that the use of renewable energy is at the top of the Philippines' climate agenda, and plans to increase energy sources such as hydropower, geothermal power, solar, and wind.³⁸

The Philippines has high potential for the development of OSW. A World Bank Report (2022)³⁹ indicates that in a high growth scenario, OSW saves over 430,000 metric tons of SO₂ and 275,000 metric tons of NO_x, cumulatively by 2040 compared with the operation of CFPPs.

Through the shift to renewable energy, poverty may be reduced and addressed on some levels. Access to electricity is a significant barrier to poverty reduction. The shift to renewable energy can help to overcome this barrier by providing access to affordable and reliable electricity to more people, particularly in rural areas. The growth of RE could also provide job opportunities in sectors such as manufacturing, installation, and maintenance of renewable energy infrastructure.

RE will also provide lower energy costs. According to the Institute for Energy Economics and Financial Analysis (2018), through RE sources, cost per kilowatt per hour may decrease into 2.5 to 5.3 pesos per kWh. However, considering the discrepancies in energy cost, the transition may also result in higher energy costs for some consumers, particularly those who are not able to access the benefits of renewable energy due to lack of infrastructure or financial constraints.

Environmental risks. Although referred to as clean energy, there are also environmental risks associated with renewable energy projects. The risks vary depending on the type of renewable

³⁶ UNDP. [Philippines Climate Promise](#).

³⁷ ADB. Morgado, N. Connect, D. [Five Ways to Fund the Philippines' Fight against Climate Change](#). ADB Blogs.

³⁸ Government of the Philippines. 2023. [Spotlight on Environmental, Social, and Governance \(ESG\)](#).

³⁹ World Bank Group. 2022. Offshore Wind Development Program. "Offshore Wind Roadmap for the Philippines.

energy to be employed. Further assessment and validation will be undertaken on these risks during the SESA process.

1. Hydropower

Hydropower plants do not emit waste heat and gases that are common with fossil-based power plants. Air quality issues of hydropower are related to the release of methane from the decomposition of flooded organic materials in the reservoir necessary to operate the dam. Emissions from reservoirs tend to be highest in the first 10 to 20 years immediately following reservoir impoundment, then decrease over time.

Hydropower does not pollute water during operation, but construction impacts are significant and irreversible due to the changes in land use, river hydrology, and natural habitats in the dam area. Hydropower and dams require extensive inundation of upstream areas, furthering habitat fragmentation, thereby affecting ecosystems and the species these ecosystems harbor. The dam structure and reservoir may obstruct fish migration and affect their populations. It can also induce change in the water temperature and the river's flow. These changes cause harm to endemic flora and fauna in the river, cause fragmentation and destruction of habitats and biodiversity. Downstream ecosystem will be affected particularly if environmental flow is not provided. In the Philippines, the requirement for release of environmental flow is not strictly enforced, although the National Water Resources Board (NWRB) suggests a 10% minimum flow.

Communities downstream of hydropower dams face risks of flooding due to release of water. There have been instances in the country when extreme rainfall events have caused heavy flooding and inundation in lowland communities that resulted in damage or loss of properties and even deaths. On the other hand, during the dry months, the operation of hydropower is prone to low-water level during drought.

Water rights allocation and river diversions pose potential problems and conflict with customary and existing water users. In practice, water for drinking and domestic use takes precedence over other uses, followed by agriculture and hydropower, respectively.

2. Geothermal

The production of geothermal energy results in relatively low GHG emissions and airborne particulate matter. Emissions from geothermal plants are lower, averaging (122 g/kWh), as compared to fossil-fuel based plants which produces about 900 g/kWh for coal and 700 g/kWh for oil.⁴⁰

The main air quality concern for geothermal facilities is related to release of hydrogen sulfide (H₂S), CO₂ and other gases which could pose health and safety risks to workers and communities. H₂S dispersion in a geothermal plant is influenced by the concentration of the pollutant, atmospheric and climate conditions, wind direction, topography, and the location of environmental and sensitive receptors surrounding the site. It is therefore necessary to conduct air dispersion modeling during geothermal plant design and during the environmental impact assessment process to predict transport of H₂S gas and develop conclusions and recommendations to avoid adverse impacts to the environment and the community.

⁴⁰ ESMAP 2016 as cited in Rapid Environmental and Social Assessment of Geothermal Development in Conservation Forest Areas in Indonesia. Profor and World Bank Group. August 2019

3. Wind and Solar

Most of the well-documented effects of solar energy on ecosystems and biodiversity are associated with the loss and change to habitats, since the development of solar energy infrastructure can take up significant amounts of land, thereby modifying and fragmenting habitats in the process⁴¹. Offshore wind and solar energy power generation projects may alter water quality, increase sediment, and reduce dissolved oxygen in water due to the coastal marine structures. There may also be possible leaching of chemicals from floating structures or accidental oil, lubricant and chemical spills during construction, operation and maintenance.

For offshore solar energy, the extent of impacts will depend on the dimensions, design, and proportions of the system in relation to the size of the surface water body, as well as the system characteristics of the water system (currents, tidal effects) and climatic conditions. Habitats and species may be potentially affected during clearing for assembly and laydown areas. There may be changes in water quality (dissolved oxygen, temperature, chlorophyll, light) and potential changes in water resource supply due to water retention and reduced evaporation rates. There may be changes in plant biomass and increase in the frequency of hypoxia conditions that may lead to algal blooms due to substantial shading. Marine life may also be affected by noise and vibration that will be created during the construction. Proximity to marine protected areas or sanctuaries should be considered to assess impacts to aquatic resources of offshore wind and solar projects. Even at deep water development, marine species are still occupying space and erection of facilities of any kind will create impact on their niche.

It is important for resource managers such as DENR, Laguna Lake Development Authority (LLDA), and local government units to understand the potential interaction of offshore wind and floating solar development with the aquatic environment to maximize the opportunities and minimize potential threats and risks. In addition, while national long-term framework plans for renewable energy development includes land-based solar projects, these do not include plans on development and promotion of floating solar.

The expansion of the Competitive Renewable Energy Zones (CREZ) needs to be prioritized to locate and identify floating solar and wind resources in the country. The CREZ should also consider climate change risks and impacts and consider the environment and social aspects and total carrying capacities of identified water bodies, particularly rivers and inland lakes and reservoirs in relation to other existing uses. This would be undertaken at the national level and will involve inter-agency cooperation among Government agencies such as DOE, DENR, National Water Resources Board (NWRB), LLDA, National Irrigation Administration, among others.

4. Marine Renewable Energy

The MREs still require further viability assessment considering the effects of climate change and the equitability of associated MRE technologies including cost, which may be unique depending on the site characteristics in the Philippines. Other collective impacts, challenges, and considerations on MRE are the following:

⁴¹ Gasparatos, A., Doll, C. N., Esteban, M., Ahmed, A., & Olang, T. A. 2017. Renewable energy and biodiversity: Implications for transitioning to a Green Economy. *Renewable and Sustainable Energy Reviews*. 70. pp. 161–184. Retrieved from: <https://www.sciencedirect.com/science/article/am/pii/S1364032116304622>

- Limitation of the MRE infrastructures and technology depending on weather and ocean conditions in which structure should be able to endure the drastic effects of climate change with minimal repair to become cost-effective and environmentally sustainable;
- Capacity to connect to the grid system for remote, hard to access areas;
- Level of certainty of its effects to marine ecosystem especially on areas (or near areas) that are declared as protected/Ramsar Zones;
- Impacts of the structures to the local fishermen/ fishing zones;
- Impacts of the structures to navigational routes;
- Infrastructure risks from potential typhoon and tsunami occurrences;

An extensive resource inventory, planning and mapping will be needed to create the database for potential areas for MREs that avoids conservation areas and protected areas. The resource inventory and planning will need the cooperation of various government agencies to ensure that the results are aligned with existing environmental policies, rules and regulations.

The following are issues that need to be further explored when undertaking the full SESA:

- Assessment of the capacity and capability of existing ports in the country in handling the physical requirements of MREs, including assessment of requirement for port upgrades.
- Effects on navigation routes of marine vessels for MREs (wind and solar projects)
- Impact of climate change and typhoons on the maintenance and operation of MREs, including evaluation of extreme wind speeds that would affect generation capacity for OSWs and type of turbines to be used as appropriate to the Philippine setting.
- As required in the Philippine Environmental Impact Statement System, extensive environmental and social impact assessments would be needed that includes geological surveys, ecological surveys to address any gaps in current knowledge of the protection zones, community, and stakeholder consultations to determine impacts on local industries such as fishing, tourism, aquaculture, shipping, agriculture, etc.

5. Waste-to-Energy and Biomass

The DOE through Department Circular No.2022-02-0002⁴² or *Prescribing the Policies and Programs to Promote and Enhance the Development of Biomass Waste-to-Energy (WTE) Facilities* recognizes biomass WTE as an intervention in reducing methane emission by conversion of wastes into usable heat, electricity, or fuel. However, creating detailed study on its value to reduce CO₂ emission and further educating the public on its effect to the air quality may be a challenge, especially among groups that do not consider WTE as a renewable energy source. There are also concerns on the potential risk of atmospheric emission that may be detrimental to health if not fully controlled, and strict containment and disposal of residual ash.

WTE has its limitations that need further evaluation and study in the Philippines setting including:

- **Availability of feedstock.** The clustering of LGUs as supplier of the needed volume of waste will require careful study and environmental management measures on hauling from one point to another. In addition, political intervention on waste disposal and collection that will guarantee the adequacy of volume of waste needed to feed the plant

⁴² Department of Energy. "Prescribing the Policies and Programs to Promote and Enhance the Development of Biomass Waste-to-Energy (WTE) Facilities" Department Circular No. DC2022-02-0002. <https://www.doe.gov.ph/sites/default/files/pdf/issuances/dc2022-02-0002.PDF>

will be needed. Prudent creation, review and implementation of agreements, strategies, policies, and rules must be employed to avoid unlawful waste trade.

- **Greenhouse gas emission during operation.** WTEs can still emit harmful gases and may pose impact to the environment if no proper technology will be employed to manage the emission. High CO₂ emission from plastic wastes and other oil-based materials will generate gas that is equivalent to fossil fuel thus contributing the air pollution.
- **Waste segregation.** Rigid separation of waste materials prior to feeding will be a challenge and requires supplementary work to ensure correct segregation.

Social risks. Anthropogenic activities on the natural landscape can impact the accessibility and/or availability of renewable energy sources. Similarly, the use of renewable energy can alter the way land is utilized. Physical environments such as forests and grasslands to be cleared for agriculture and/or urban development, reduces the amount of land available for wind or solar farms. This can negatively affect the production of renewable energy. Land use changes associated with renewable energy projects can have indirect overexploitation effects of these pathways as populations rely on ecosystem services for their livelihood. Overexploitation can be manifested in displacement of natural resource harvesting (e.g., forest products, pasture) from areas taken up by renewable energy infrastructure, to ever diminishing habitats.⁴³

Land use planning within ancestral domains (ADs) are commonly related to infrastructure projects and investments by the private sector. Given the complexity of the context of lands and ADs, mining and energy need to find the right balance to co-exist and come to terms with IPs and their ADs through effective benefit sharing agreements for economic growth⁴⁴ Historically, indigenous peoples and the mining sector have had conflicting perceptions where indigenous peoples' perception of mining is relatively negative because of multiple accounts of unbalanced sharing of profits. Based on mining royalties' structure, indigenous peoples receive 1% supplementary royalty on sales values of operation within their ADs, only with Certificates of Ancestral Domain Titles (CADT)⁴⁵ The energy sector is also at risk of following the path of territorial planning within ADs, including ancestral waters, if planning is not done properly and strategically.

Effects of climate change greatly impact the vulnerable and socially marginalized population—indigenous peoples—especially as these groups are dependent and culturally tied to their environment⁴⁶, most are environmentally sensitive and are hotspots for conventional energy reserves.⁴⁷ Indigenous peoples already vulnerable status are further intensified by human rights abuse during expropriation of lands and implementation of climate change mitigation projects that neglect the need for a meaningful participation and consultation of the indigenous communities to obtain their free, prior, and informed consent.⁴⁸

⁴³ Department of Energy. "Prescribing the Policies and Programs to Promote and Enhance the Development of Biomass Waste-to-Energy (WTE) Facilities" Department Circular No. DC2022-02-0002. <https://www.doe.gov.ph/sites/default/files/pdf/issuances/dc2022-02-0002.PDF>

⁴⁴ Environmental Science and Social Change Inc (ESSC), Where are Indigenous Peoples going? 2011. <https://essc.org.ph/content/view/473/153/>, accessed in April 2023.

⁴⁵ World Bank. Philippines Mining Sector Diagnostic (MSD), 2020 and Philippines Extractive Industries Transparency Initiative (PH-EITI).

⁴⁶ United Nations Department of Economic and Social Affairs. [Challenges and Opportunities for Indigenous Peoples' Sustainability](#).

⁴⁷ Carpenter, K. A., & Jampolsky, J. A. (2015). Indigenous peoples: From energy poverty to energy empowerment. In *International Energy and Poverty* (pp. 63-76). Routledge.

⁴⁸ Carpenter, K. A., & Jampolsky, J. A. (2015). Indigenous peoples: From energy poverty to energy empowerment. In *International Energy and Poverty* (pp. 63-76). Routledge.

Renewable energy may increase women's opportunity to expand livelihood and economic productivity, but these can be hindered by existing gender and social norms.⁴⁹ Gender norms and class indicate the parts of the population that would greatly benefit from renewable energy services.

Wind and solar power plants can negatively impact agriculture and land rights that could lead to conflict. When developing offshore wind energy, one of the challenges is the environmental and social impacts resulting from increased scale, cumulative impacts on fisherfolks and biodiversity from multiple projects. If not mitigated and not carefully planned, could lead to significant adverse environmental and social impacts and adverse impacts on communities and other industries like fishing, aquaculture, and tourism.⁵⁰ On this premise, ADs can have cultural and spiritual significance for indigenous communities, who may have strong connections to the land and water and rely on these resources for their livelihoods and cultural practices. Renewable energy projects developed in these areas must consider the potential impacts on cultural and spiritual values and seek the free, prior, and informed consent (FPIC) of indigenous communities.

As with any new development project, the siting and development of renewable energy may potentially result in the following:

- In-migration of people in search of jobs
- Increased financial and domestic burdens
- Impact on indigenous communities' communal land and traditional practices and cultures if located in ancestral domain of indigenous peoples
- Potential forced labor
- Large-scale land clearing for production of biomass and expansion of energy crops
- Higher food prices and decreased volume of available food crops, leading to malnutrition in rural areas
- Increased conflicts within communities over loss of access to land
- Physical and economic displacement of people
- Loss of or cutbacks to local public services and infrastructure
- In supply chain, potential violations of human rights and waste management issues from imported renewable energy materials and equipment (i.e., mining of minerals, manufacture of wind turbine materials and solar panels).
- MREs may cause possible conflict with local fishermen, operation of aquaculture farms, and on boat navigation.

C. Regulatory Risks

The following are legal and regulatory issues affecting energy transition which needs to be further evaluated in the SESA:

- **Issues on government and power sector player contractual obligations**

⁴⁹ Johnson, O. W., Han, J. Y. C., Knight, A. L., Mortensen, S., Aung, M. T., Boyland, M., & Resurrección, B. P. (2020). Intersectionality and energy transitions: A review of gender, social equity and low-carbon energy. *Energy Research & Social Science*, 70, 101774. Retrieved from: <https://www.sciencedirect.com/science/article/pii/S2214629620303492>

⁵⁰ World Bank. 2022. Offshore Wind Roadmap for the Philippines.

Contracts that are issued for coal and gas-fired plants are long-term (25–50 years). In legal terms, contracts are legally binding and operators with contract with the government are expected to complete the contractual term.

Operators are wary of security of investments or return of investment (ROI) because planning and development of projects were based on projected supply and expectation and that finishing the contracts will guarantee right-of-way for the operators.

In these situations, the government may face legal challenges and cases (courts and in arbitration centers/panels).

- **Government institutional capacity and overlapping mandates and priorities to implement transition**

There are many government agencies involved in the energy transition. It is not clear how mandates and policies and programs of these agencies are aligned to the transition goals and targets. The energy transition road map or blueprint will help align mandates and priorities of the different government agencies.

- **Conflict with other priority and existing rights (energy security, IPRA, protected area, land use)**

It is the priority of the government to provide basic services, energy security and electricity access, labor and job creation and security. There are consumer concerns for increased electricity prices, lack of access to renewable energy services that will help lower electricity costs.

In the Philippines, it is possible for power plants to be located near residential communities or protected areas. The Rules of Procedures for Environmental Cases under the Rules of Court may be utilized in the event any power plant or energy-related activity threatens or causes environmental damage to an area or community. Citizens may look into the Writ of Kalikasan to put a halt to such activities or ask for the issuance of the Writ of Continuing Mandamus to ensure that public officers are employing with their duty according to the relevant environmental laws.

- **Conflict and/or inconsistencies with other environmental laws**

Energy transition activities may also conflict and misalign with existing environmental laws

- a. Mining – decommissioning of coal mines; continuing responsibility and accountability of companies which closed down due to the transition
- b. Waste – recycling of e-waste from RE projects and activities. While there are entities that recover precious metals in batteries and other equipment as well as collect used oil for reprocessing, other e-wastes that will be generated from RE projects may end up in landfills or disposed inappropriately due to the lack of opportunities for reuse and recycling in the country.
- c. Protected areas and wildlife protection – impact of RE projects on protected areas and on endangered and migratory species.
- d. Gaps in the PEISS – Renewable energy projects such as ocean, solar, wind, tidal power except waste-to-energy and biogas projects with rated capacity over 100 MW are classified as Category B and an environmental impact statement (EIS) report (rather than an initial environmental examination checklist) will be required

to be submitted to the DENR-EMB, even if the project site traverses or will be located near an environmentally critical area (ECA). The threshold requiring an EIS report to secure the Environmental Compliance Certificate (ECC) for waste-to-energy projects is over 50 MW while for biogas projects is over 5 MT. Those falling below these thresholds only require an initial environmental examination checklist.

- e. Pollution – meeting effluent and emissions standards; preventing pollution at sea and other biodiversity sensitive areas. The national emissions standards are less stringent than the international standards.
 - f. Water Rights – The Water Code of the Philippines (PD 1067) and Executive Order 462 allows the utilization of water resources for power generation and water permits are issued for use of these water resources. However, there is no robust guidelines in place for utilization of different water bodies (marine, lakes, dams, and reservoirs) for floating solar and offshore wind energy. There is a need to amend or develop an addendum to the Philippine Water Code relevant to the issuance of water permit for floating solar or offshore wind. DENR has drafted the guidelines for issuance of tenure instruments for floating solar projects, but the draft guidelines should be harmonized with the existing DOE guidance on service contracts and operating contracts for renewable energy and with the regulations of NWRB on the issuance of a water permit.
- **No statutory requirement in the Philippines for SESA**
 - a. There is a draft bill for application of SEA to short- and long-term public-private partnerships and clusters of co-located projects but none on programs and road maps.
 - b. Current law under PD 1586 mandates an environmental impact assessment for individual projects. PEISS implementation is generally project-specific and site-specific.
 - **Health and Safety Regulations** – The Philippines does not currently have any health and safety regulation in place specifically for the OSW project. There are available international regulations, standards and guidelines which can be referred to that cover health and safety for OSW. It is therefore important to include capacity development as a core element of the design and implementation of OSW projects and other renewable energy projects.
 - **Issues on 100% foreign ownership of RE projects.** Recent DOJ opinion allows 100% foreign ownership of RE projects (RE resources are sui generis and are not the same as other natural resources). There is potential challenge to this opinion, as the Constitution mandates only 100% Filipino-owned companies (or at least 60% Filipino-owned) can utilize natural resources. In such instance, the DOJ opinion can be overturned or reversed by a law or Supreme Court decision, making investments unsure.
 - **Full implementation of Energy Virtual One-stop Shop Law and other recent policies and programs** (i.e., Green Energy Option Program, green lanes for RE investments)

There is continuing concerns over red-tape, corruption, and inefficiencies in the permitting processes which could potentially derail or stall RE development and energy transition. There are local government concerns and involvement in RE projects wherein local government units are seeking local autonomy considerations.

- **Less stringent air emission standards**

There is also a need to further review the current Philippine emission standards, which are considered less stringent than international standards.

Table 27: Government Agencies with Mandates and Responsibilities on Environment and Social Safeguards

Acronym	Institution	Function
BFAR	Bureau of Fisheries and Aquatic Resources	Under the Department of Agriculture, responsible for management and conservation of aquatic resources and marine biodiversity
BLR	Bureau of Labor Relations	Promotes awareness to workers concerning their rights and obligations as union members and as employees. Provides an adequate administrative machinery for the expeditious settlement of labor or industrial disputes.
BMB	Biodiversity Management Bureau	Mandated to conserve and sustainably manage the country's biodiversity.
BSWM	Bureau of Soils and Water Management	Responsible for advising and rendering assistance on matters relative to the utilization of soils and water as vital agricultural resources.
BWC	Bureau of Working Conditions	Performs policy and program development and advisory functions for the Department in the administration and enforcement of laws relating to working conditions.
CCC	Climate Change Commission	Is the lead policy-making body of the government tasked to coordinate, monitor, and evaluate government programs and ensure mainstreaming of climate change in national, local, and sectoral development plans toward a climate-resilient and climate-smart Philippines.
PCG	Philippine Coast Guard	Armed service responsible for Philippine waters; issues security clearance in navigable waters
DA	Department of Agriculture	Responsible for the promotion of agricultural and fisheries development and growth.
DAR	Department of Agrarian Reform	Responsible for the redistribution of agrarian land in the Philippines.
DBP	Development Bank of the Philippines	Provides development banking, financing, management, and remittance services to the agricultural and industrial enterprises in the Philippines.
DOE	Department of Energy	Responsible for preparing, integrating, organizing, supervising, and controlling all plans, programs, projects and activities of the Government relative to energy exploration, development, utilization, distribution and conservation.
DENR	Department of Environment and Natural Resources	Primary government agency responsible for the conservation, management, development, and proper use of the country's biological resources, natural physical endowments, and major natural assets.
DILG	Department of Interior and Local Government	Responsible for promoting peace and order, ensuring public safety, and strengthening local government capability aimed toward the effective delivery of basic services to the citizenry.
DND	Department of National Defense	Executive department for national security
DOF	Department of Finance	Responsible for the formulation, institutionalization and administration of fiscal policies, management of the financial resources of the government, supervision of the revenue

Acronym	Institution	Function
		operations of all local government units, the review, approval and management of all public sector debt, and the rationalization, privatization and public accountability of corporations and assets owned, controlled, or acquired by the government.
DOLE	Department of Labor and Employment	Mandated to promote gainful employment opportunities, develop human resources, protect workers, and promote their welfare.
DPWH	Department of Public Works and Highways	Mandated to “be the State's engineering and construction arm” and, as such, it is “tasked to carry out the policy” of the State to “maintain an engineering and construction arm and continuously develop its technology, for the purposes of ensuring the safety of all infrastructure facilities and securing for all public works and highways the highest efficiency and the most appropriate quality in construction” and shall be responsible for “(t)he planning, design, construction and maintenance of infrastructure facilities, especially national highways, flood control and water resources development systems, and other public works in accordance with national development objectives.
DSWD	Department of Social Welfare and Development	Responsible for the protection of the social welfare of rights of Filipinos and to promote social development.
DOTr	Department of Transportation	Responsible for the maintenance and expansion of viable, efficient, and dependable transportation systems as effective instruments for national recovery and economic progress.
DTI	Department and Trade and Industry	An umbrella organization for many of the industry offices in the Philippines.
EMB	Environmental Management Bureau	Provides advice to the DENR secretary on matters relating to environmental management, conservation, and pollution control.
FMB	Forest Management Bureau	Recommends to the DENR the policies and programs for the effective protection, development, occupancy, management, and conservation of forest lands and watersheds.
DHSUD	Department of Human Settlements and Urban Development	A national government agency tasked as the planning, regulatory and quasi-judicial body for land use development and real estate and housing regulation.
HUDCC	Housing and Urban Development Coordinating Council	The umbrella agency of various housing and development offices of the Government of the Republic of the Philippines.
LLDA	Laguna Lake Development Authority	Establishes and enforces water quality standards for industrial, agricultural, and municipal use; issues and revokes permits for the use of surface waters within the Laguna Lake region.
LBP	Land Bank of the Philippines	Bank owned by the Government of the Philippines with a special focus on serving the needs of farmers and fishermen.

Acronym	Institution	Function
LMB	Land Management Bureau	Advises the DENR secretary on matters pertaining to rational land classification, management, and disposition.
LMP	League of Municipalities of the Philippines	Formal organization of all the municipalities in the Philippines. Presently, 68 municipalities are part of this organization.
LPP	League of Provinces of the Philippines	A formal organization of all the provinces in the Philippines. Presently, 81 provinces are part of this organization.
MMDA	Metro Manila Development Authority	Performs planning, monitoring and coordinative functions, and in the process exercises regulatory and supervisory authority over the delivery of metro-wide services within Metro Manila.
MARINA	Maritime Industry Authority	Responsible for registering vessels and prescribing domestic shipment routes
NAMRIA	National Mapping and Resource Information Authority	Under DENR, is responsible for surveying and mapping covering hydrographic and bathymetric data.
NCIP	National Commission on Indigenous Peoples	Responsible for protecting the rights of the indigenous peoples of the Philippines.
NEDA	National Economic and Development Authority	An independent cabinet-level agency of the Government of the Philippines responsible for economic development and planning.
NHA	National Housing Authority	Government agency responsible for public housing in the Philippines.
NRDC	Natural Resources Development Corporation	Corporate arm of the DENR responsible primarily for promoting natural resource development and conservation.
OHSC	Occupational Health and Safety Center	An agency of the Department of Labor and Employment, envisioned as the national authority for research and training on matters pertaining to safety and health at work.
PNRI	Philippine Nuclear Research Institute	Government agency under the Department of Science and Technology mandated to undertake research and development activities in the peaceful uses of nuclear energy, institute regulations and carry out the enforcement of said regulations to protect the health and safety of radiation workers and the public.
PPA	Philippine Ports Authority	Under the Department of Transportation, is responsible for all ports except Cebu; oversees port development and leasing for harbor plots only.
BMB	Biodiversity Management Bureau	Formulates and recommends policies, guidelines, and rules and regulations for the establishment and management of integrated protected area systems (IPAS) such as national parks, wildlife sanctuaries and refuges, marine parks, and biospheric reserves.
ULAP	Union of Local Authorities of the Philippines	Is the umbrella organization of all leagues of local government units (LGUs) and locally elected government officials.

Source: World Bank. Draft Report Country Safeguards Framework Assessment.

Table 28: List of Stakeholders

Private Sector	
Alcorn Gold Resources Corp.	Eastern Petroleum Corporation
Alternergy Philippine Holdings Corporation	EcoMarketSolutions, Inc. (1.5)
Alternergy Sembrano Wind Corporation	EDC Burgos Wind Power Corporation
Amihan Energy Corporation	EDC Pagudpud Wind Power Corporation
Anglo-Philippine Holdings Corp.	EI Elyon Power Plant Phils. Inc.
AP Renewables, Inc.	Emerging Power Inc.
Aragorn Power and Energy Corporation	Energy Development Corporation
AseaGas Corporation	Energy Logics Philippines, Inc.
Asian Carbon Neutral Power Corporation	EP Oilfield Services Phils., Inc.
Asian Greenenergy Corp.	Explo Energy Consultants
Astronergy Development GenSan Inc.	FilOil Gas Company, Inc.
ATN Philippines Solar Energy Group, Inc.	Filpride Resources
AVGarcia Power Systems Corp.	First Farmers Holding Corp.
Bac-man Geothermal Inc.	First Gen Renewables Incorporated
Bacavalley Energy Inc.	First Gen Visayas Energy Inc.
Basic Energy Corp.	First Toledo Solar Energy Corporation
Bataan 2020 Inc.	FirstMaxpower International Corporation
Bayog Wind Power Corp.	Forum Energy Phils., Inc.
Ben Line Agencies Phils., Inc.	Frontier Oil Corp.
Bicol Biomass Energy Corporation	Galoc Production Company
Biliran Geothermal Incorporated	Grass Gold Renewable Energy Corporation
BronzeOak Philippines, Inc.	Green Alternative Technology Specialist, Inc.
Buduan Wind Energy Co., Inc.	Green Core Geothermal Inc.
BWST, Inc.	Green Earth Energy Ventures, Inc.
Cadlao Development Co.	Green Future Innovations Inc.
Central Azucarera de San Antonio	Green Innovations for Tomorrow Corporation
Chevron Philippines Inc.	Green Power Panay Phils., Inc
Chevron Texaco Malampaya Phils. LLC	GreEnergy Power Systems Philippines, Inc.
Clean Rock Renewable Energy Resources Corporation	Hacienda Bio-Energy Inc.
Cleantech Global Renewables, Inc.	Hawaiian Philippine Company
Constellation Energy Corporation	Hedcor Benguet, Inc.
Cornerstone Energy Development, Inc.	Hedcor Bukidnon, Inc.
Crystal Sugar Company, Inc.	Hedcor Sabangan, Inc.
Del Sol Energy Primera, Inc.	Hedcor Sibulan, Inc.

Private Sector	
EarthEnergy Corp.	HEDCOR, Inc.
Helios Solar Energy Corp. (formerly Phil-Power Solar Energy Corp.)	Petronas Energy Phils., Inc
Isabela Biomass Energy Corporation	PetroSolar Corporation
Isla LPG Corporation	Petrotrade Phils., Inc.
JETTI Petroleum Inc.	PetroWind Energy Inc.
Jobin-Sqm Inc.	Phil. Solar Farm-Leyte, Inc.
Kirahon Solar Energy Corporation	Phil. Solar Farm-Palawan, Inc.
Lamsan Power Corporation	PhilCarbon, Inc.
Leyte IV Electric Cooperative, Inc.	Philex Petroleum Corp.
Leyte V Electric Cooperative, Inc (LEYECO V)	Philippine Geothermal Production Company Inc.
Liquigaz Phils. Inc.	Philippine Hybrid Energy Systems, Inc.
Living Projects 4 People Philippines Inc.	Philippine Trade Center, Inc.
Logistics Marketing Phils. Inc.	PhilNewEnergy, Inc.
Lucky PPH International, Inc.	Philodrill Corp.
Maibarara Geothermal Inc.	Phoenix Petroleum Phils. Inc.
Marubeni Philippines Corp.	Pilipinas Shell Petroleum Corp.
Megawatt Clean Energy, Inc.	Pitkin Petroleum PLC
Mirae Asia Energy Corporation	PNOC - Renewables Corp.
Montalban Methane Power Corporation	PNOC-Exploration Corp.
Monte Solar Energy Inc.	Polynard Petroeum International Co., LTD
Negron Cuadrado Geothermal Inc.	PowerSource Philippines, Inc.
Negros Island Solar Power Inc.	Pryce Gases, Inc.
Next Generation Power Technology Corp.	PTT Phils. Corp.
Nido Petroleum Phils. PTY Ltd.	RASLAG Corp.
North Luzon Renewable Energy Corporation	Restored Energy Development Corp
NorthPoint Wind Power Development Corporation	Ryanyx Construction & General Services Corp.
Philippines Solar Energy One, Inc.	San Carlos Bioenergy Inc.
Oriental Petroleum and Minerals Corp.	San Carlos Sun Power Inc.
Ormin Power, Inc	San Jose City I Power Corporation
Otto Energy	San Juan Geothermal Power Inc.
Pan Energy Corporation	SEAOIL Philippines Inc.
Pangasinan UPC Asia Corporation	Shell Phils. Exploration B. V.
Pangea Green Energy Philippines, Inc.	SKI Construction Group Inc.
Petro Energy Resources Corp.	Solar Philippines Calatagan Corporation

Private Sector	
Petroleum Association of the Phils.	Solar Philippines Commercial Rooftop Projects, Inc.
Petron Corporation	Solar Power Utilities Generator Corporation
SolarPacific Energy Corporation	Trans-Asia Oil & Energy Dev. Corp.
Solarus Partners Inc.	Trans-Asia Renewable Energy Corporation
Solutions Using Renewable Energy Inc. - Excel	Transnational Renewable Energy Corporation
South China Resources Inc.	Tri-Conti Elements Corporation
SPARC Solar Powered Agri-Rural Communities Corporation	Unioil Petroleum Phil., Inc.
Sulu Electric Power and Light (Phils.), Inc.	Universal Robina Corporation
Sun Option for Livelihood Alternative Resources Inc.	Victorias Milling Company Inc.
SunAsia Energy Inc.	VictoriaSolar Energy Corp. (formerly SunAsia Energy Inc.)
Sunwest Water and Electric Co., Inc.	Vulcan Industrial & Mining Corp.
Supply Oilfield Services, Inc.	
Sure PEP, Inc.	
Total E&P Phils. Ventureoil Phils., Inc.	

Electric Cooperatives		
Aurora (AURELCO)	Northern Samar (NORSAMELCO)	Negros Occidental (NOCECO)
Tarlac I (TARELCO I)	Samar I (SAMELCO I)	Negros Oriental I (NORECO I)
Tarlac II (TARELCO II)	Samar II (SAMELCO II)	Negros Oriental II (NORECO II)
Nueva Ecija I (NEECO I)	Eastern Samar (ESAMELCO)	
Nueva Ecija II (NEECO II) - AREA I	Bantayan Island (BANELCO)	Leyte III (LEYECO III)
Nueva Ecija II (NEECO II) - AREA II	Cebu I (CEBECO I)	Leyte IV (LEYECO IV)
San Jose City (SAJELCO)	Cebu II (CEBECO II)	Leyte V (LEYECO V)
Pampanga Rural Electric Service (PRESCO)	Cebu III (CEBECO III)	South Leyte (SOLECO)
Pampanga I (PELCO I)	Siquijor (PROSIELCO)	Biliran (BILECO)
Pampanga II (PELCO II)	Camotes (CELCO)	Batangas I (BATELEC I)
Pampanga III (PELCO III)	Bohol I (BOHECO I)	Batangas II (BATELEC II)
Peninsula (PENELCO)	Bohol II (BOHECO II)	Quezon I (QUEZELCO I)
Zambales I (ZAMECO I)	(Leyeco I/Dorelco)	Quezon II (QUEZELCO II)
Zambales II (ZAMECO II)	Leyte II (Leyeco II)	
Central Negros (CENECO)	First Laguna (FLECO)	

Distribution Utilities		
Manila Electric Company	Olongapo Electricity Distribution Company, Inc.	Tarlac Electric, Inc.
Dagupan Electric Corporation	Subic Enerzone Corporation	Ibaan Electric and Engineering Corporation
La Union Electric Company, Inc.	San Fernando Electric and Power Company, Inc.	Panay Electric Company, Inc.
Angeles Electric Corporation	Mactan Enerzone Corporation	Bohol Light Company, Inc.
Clark Electric Distribution Corporation (CEDC)	Visayan Electric Company, Inc.	
Cabanatuan Electric Corporation (CELCOR)	Mactan Electric Company, Inc.	

Generation Companies	
1590 Energy Corp	East Asia Utilities Corp
Aboitiz Power Renewables, Inc. APRI	EEI Power Corp.
Absolute Distillers, Inc	Energy Development Corporation
Alternergy Wind One Corporation	Energy Development Corporation (Green Core)
Anda Power Corporation	Enervantage Supplies Co inc
Asia Pacific Energy Corp. (APEC)	Enfinity Philippines Renewable Resources
Asian Greenenergy Corporation	Filinvest Devt Corp. (FDC) Misamis Power Corporation
Astronergy Development Gensan Inc.	First Bay Power Corporation
Atimonan One Energy Inc	First Cabanatuan Ventures Corporation
Bantayan Island Power Corporation	First Gas Power Corp.
Bataan 2020, Inc.	First Gen Bukidnon Power Corp
Bohol Electric Cooperative, Inc.	First Gen Hydro Power Corp.
Bukidnon Power Corporation 2	First NatGas Power Corp.
Cagayan Electric Power and Light Company, Inc.	First Toledo Solar Energy Corp.
CE Casecnan Water And Energy Company, Inc	Global Business Power (CEDC) / Toledo Power
Cebu Energy Development Corp. Global Business	Global Business Power (Panay Energy Development Corp.)
Cebu Private Power Corp. (Carbon, Cebu)	GN Power Kauswagan Ltd. Co.
Central Azucarera de San Antonio	GN Power Mariveles Ltd. Co.
Corcuera Electric System	Green Earth Enersource Corp.
Cotabato Light & Power Company	Green Innovations for Tomorrow Corporation
Crystal Sugar, Inc.	Hedcor, Benguet Inc.
Davao Light and Power Company	Hedcor, Sibulan Inc.
DMCI Power Corporation	Hedcor, Sibulan-Tudaya Inc.
Hedcor, Talomo Inc.	Olongapo Electricity Distribution Company, Inc
Ibaan Electric and Engineering Corporation	NV Vogt Philippines Solar Energy One, Inc
Iligan Light and Power, Inc.	NV Vogt Philippines Solar Energy Three Inc
Ilocos Norte Electric Cooperative, Inc.	One Subic Power Gen Corp / Trans Asia
Isabela Biomass Energy Corp	Palm Concepcion Power Corporation
Jobin-SQM / Nickel Asia	PANASIA Energy
Kepeco SPC Power Corp. / Korea Electric Power Corp	Pantabangan Municipal Electric System (PAMES)

Generation Companies	
King Energy	Peak Power Bukidnon Inc.
Korea Electric Power Corporation / Team Energy (Kepco)	Peak Power Energy Inc. (Socsargen)
Korea Water Resources Corp/San Miguel Corp	Peak Power San Francisco, Inc.
Lima Enerzone Corporation (LEZ)	Petro Solar Corporation
Maibarara Geothermal, Inc	Southern Philippines Power Corp / Alto Power MC SPPC
Majestics Energy Corporation	PetroWind Energy, Inc.
Mapalad Power Corp / Alsons Power	Philippine Power Solar Energy Corporation
Masinloc Power Partners Co. Ltd.	Phinma (Trans-Asia Oil and Energy Development)
Midsayap, 9410 Cotabato	Phinma Corp. (Trans-Asia Power Generation Corp)
Mindanao Energy Systems, Inc / MINERGY	Phinma Corp. (Trans-Asia Renewable Energy Corporation)
Mindoro Grid Corporation	Phinma Petroleum and Geothermal Inc.
Montalban Methane Power Corp	PNOC Renewables Corporation
Next Generation Power Technology Corp	SPC Island Power Corp.
Northern Luzon Renewable Energy Corp.	Sta. Clara International Corporation
NorthWind Power Development Corp.	STEAG State Power Inc
PowerSource Philippines, Inc.	Sulu Electric Power & Light (Phils.) Corp
RASLAG Corporation	Supreme Power Corporation
San Buenaventura Power Ltd. Co.	Tarlac Power Corp.
San Carlos Solar Energy, Inc.	Team Energy
San Carlos Sun Power, Inc	Therma Mobile Inc
San Miguel Consolidated Power Corporation	Therma South, Inc.
San Miguel Consolidated Powergen Inc	Therma Visayas, Inc
San Roque Power Corporation	TOTALPower Inc.
Sarangani Energy Corporation / Conal Holdings	Universal Robina Corporation
Solar Philippines Commercial Rooftop Projects, Inc.	Victorias Milling Company, Inc.
South Luzon Thermal Energy Corp SLTEC	Western Mindanao Power Corp
Southern Leyte Electric Cooperative	

Oil and Gas		
3kings Sunrise Mining Corporation	First Asian Resources Mining Corp.	GLOBAL BUSINESS POWER CORPORATION
Adlaon Energy Development Corp.	Forum Cebu Coal Corporation	Guidance Management Corporation
Basic Energy Corporation	FORUM ENERGY	Ibalong Resources & Development Corporation
BBB Mining and Energy Corporation	Forum Exploration Inc.	Nido Petroleum
Cedaphi Mining Corporation	Gas to Grid PTE Ltd. (G2G)	Semirara Mining Corporation
China International Mining Petroleum Co., LTD.	Visayas Multi-Minerals Mining and Trading Corporation	SKI Energy Resources, Inc.

NGOs/CSOs, Worker/Labor Unions, Indigenous People's Groups, Farmer and Fisherfolk Associations, and International Organizations	
11.11.11	Japan Center for a Sustainable Environment and Society
ABS-CBN Foundation	Katribu
Action for Economic Reforms	Kilusang Mayo Uno
Aksyon Klima Pilipinas	League of Bangsamoro Organizations
AktivAsia Pilipinas	Mindanao Organization for Social and Economic Progress
Alliance of Young Health Advocates	Mindoro Biodiversity Conservation Foundation Inc.
ASEAN Centre for Biodiversity	National Pharmaceutical Foundation
Ashoka Philippines	National Urban Poor Sectoral Council
Asia Climate Change Consortium	New Energy Nexus
Asian NGO Coalition (ANGOC)	NGO Forum on ADB
Asian NGO Coalition for Agrarian Reform and Rural Development	Nisa UI Haqq fi Bangsamoro
Asian Peoples' Movement on Debt and Development (APMDD)	Organization of Teduray and Lambangian Conference
Bangsamoro Development Agency (BDA)	Oxfam Pilipinas
Bangsamoro Planning and Development Authority (BPDA)	Panaghusa
Bangsamoro Youth Commission	Philippine ICCA Consortium
Bukluran	Philippine Learning Center for Environment and Social Sustainability (PHILCESS)
Business for Sustainable Development (formerly Philippine Business for the Environment)	Philippine Movement for Climate Justice
Center for Conservation Innovations	Plan International - Philippines
Center for Energy, Ecology, and Development (CEED)	Power for People Coalition
Center for Environmental Concerns	Preferred Energy Inc. (PEI)
Center for Research on Energy and Clean Air (CREA)	Public Services Labor Independent Confederation
Chamber of Mines of the Philippines	Rare Philippines
Christian Aid Philippines	Recourse
Climate Action Program – United Nations Development Programme Philippines	Responsible Young Leaders Organization
Climate Centre (Red Cross/Red Crescent)	Sentro ng mga Nagkakaisa at Progresibong Manggagawa
Conservation International	Tabunaway and Mamalu
Consortium of Bangsamoro Civil Society	Tahanang Walang Hagdanan Inc.
Earth Day Network Philippines	Tebtebba (Indigenous Peoples' International Centre for Policy Research and Education)
Ecowaste Coalition	Teduray Lambangian Women's Organization
Energy Transition Partnership – United Nations Office for Project Services	The Asia Foundation
Fair Finance Asia Philippines	The Climate Reality Project Philippines
Federation of Free Workers	Timuay Justice and Governance
Foundation for Philippine Environment	Trade Union Congress of the Philippines
Freedom from Debt Coalition	TransitionZero
Friends of the Earth	TrendAsia Indonesia

Global Alliance for Incinerator Alternatives (GAIA) Asia Pacific	United Youth for Peace and Development
GIZ Philippines	UNYPHIL-Women
Greenpeace Southeast Asia	World Wildlife Foundation Philippines
Haribon Foundation	World Wildlife Fund for Nature Philippines
Institute for Climate and Sustainable Cities (ICSC)	WWF International
International Institute for Rural Reconstruction	Fisheries and Aquatic Resource Management Councils (National, Regional, Provincial, Municipal, Barangay)
International Labor Organization	National Federation of Small Fisherfolk Organization of the Philippines (PAMALAKAYA-Pilipinas)
International Organisation of Employers (IOE)	Nagbabalayan Farmers and Fisherfolks Association
International Rivers	Philippine Council for Agriculture and Fisheries
International Trade Union Confederation – Asia Pacific	Coalition of Municipal Fisherfolks Association
Farm Home Extensionist. Association of the Philippines	

Academe/Universities	
Adamson University	Davao de Oro State College
Adiong Memorial State College	Davao del Norte State College
Agusan del Sur State University	Davao del Sur State College
Aklan State University	Davao Oriental State University
Aliaga Polytechnic State College	De La Salle University
Apayao State College	Don Honorio Ventura State University
Ateneo de Manila University	Don Mariano Marcos Memorial State University
Aurora State College of Technology	Dr. Emilio B. Espinosa Sr. – Masbate State University
Basilan State College	Eastern Cordillera State University of Agriculture, Science and Technology
Bataan Peninsula State University	Eastern Samar State University
Batanes State College	Eastern Visayas State University
Batangas State University	Eulogio “Amang” Rodriguez Institute of Science and Technology
Benguet State University	Guimaras State University
Bicol University	Ifugao State University
Biliran Province State University	Iligan City Polytechnic State College
Binalatongan Community College	Ilocos Sur Community College
Bohol Island State University	Ilocos Sur Polytechnical State College
Bukidnon State University	Iloilo Science and Technology University
Bulacan State Agricultural University	Iloilo State University of Fisheries Science and Technology
Bulacan State Agricultural University	Institute of Environmental and Marine Sciences, Siliman University
Bulacan State University	Isabela State University
Cagayan State University	J.H. Cerilles State College
Camiguin Polytechnic State College	Jose Rizal Memorial State University
Capiz State University	Kalinga State University

Caraga State University	Laguna State Polytechnic University
Carlos Hilado Memorial State University	Leyte Normal University
Catanduanes State University	Mapua University
Cavite State University	Marikina Polytechnic College
Cebu Normal University	Marinduque State University
Cebu Technological University	Mindanao Indigenous Peoples State College
Central Bicol State. University of Agriculture	Mindanao State University – Buug
Central Luzon State University	Mindanao State University – General Santos City
Central Mindanao University	Mindanao State University – Lanao del Norte Agricultural College
Central Philippines State University	Mindanao State University – Maguindanao
Cotabato Foundation College of Science and Technology	Mindanao State University – Tawi-Tawi College of Technology and Oceanography
Cotabato State University	Mindanao State University Main
Mindoro State University	Southern Leyte State University
Misamis Occidental State College	Southern Luzon State University
Mountain Province State Polytechnic College	Sultan Kudarat State University
Negros Oriental State University	Sulu State College
North Eastern Mindanao State University	Surigao del Norte State University
North Luzon Philippines State College	Tarlac Agricultural University
Northern Bukidnon State College	Tarlac State University
Northern Iloilo State University	Tawi-Tawi Regional Agricultural College
Northern Negros State College of Science and Technology	Technological University of the Philippines
Northwest Samar State University	Technological University of the Philippines Visayas
Northwestern Mindanao State College of Science and Technology	University of Abra
Nueva Ecija University of Science and Technology	University of Antique
Nueva Vizcaya State University	University of Camarines Norte
Occidental Mindoro State University	University of Eastern Pangasinan
Palawan State University	University of Eastern Philippines
Palompon Institute of Technology	University of Ilocos Philippines
Pampanga State Agricultural University	University of Northern Philippines
Pangasinan State University	University of Rizal System
Partido State University	University of Science and Technology of Southern Philippines
Philippine Learning Center for Environment and Social Sustainability	University of Southeastern Philippines
Philippine Merchant Marine Academy	University of Southern Mindanao
Philippine Military Academy	University of the Philippines Cebu
Philippine Normal University Manila	University of the Philippines Diliman
Philippine Normal University Visayas	University of the Philippines Los Baños
Polytechnic State University of Bicol	University of the Philippines Tacloban College
Polytechnic University of the Philippines	University of the Philippines Visayas
President Ramon Magsaysay State University	Urdaneta City University
Quirino State University	Visayas State University
Rizal Technological University	West Visayas State University
Romblon State University	Western Mindanao State University

Samar State University	Western Philippines University
Siquijor State College	Zamboanga Peninsula Polytechnic State University
Sorsogon State University	Zamboanga State College of Marine Sciences and Technology
South Central Mindanao State College	Southern Philippines Agri-Business and Marine and Aquatic School of Technology
Southeast Asian University of Technology	