Upgrading Energy Regulations for Energy Regulatory Commission of the Philippines

Final Summary Report

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Ricardo Energy & Environment, Gemini Building, Fermi Avenue, Harwell, Oxfordshire, OX11 0QR, UK | +44(0)1235 75 3000 | ee.ricardo.com
Registered company no. 08229264 | VAT no. GB 212 8365 24

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Contact:
Romeo Pacudan PhD, Ricardo Energy & Environment1, Frederick Sanger Road GU2 7YD United Kingdom

T: +44 (0) 7542476018
E: romeo.pacudan@ricardo.com

Authors:
Dr Romeo Pacudan

Checked by:
Dr Graeme Chown

Ricardo reference:
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EXECUTIVE SUMMARY

The Philippine Nationally Determined Contribution (NDC) aims to reduce up to 75% of the cumulative GHG emissions during the period 2020-2030 from BAU scenario. Of this, 2.71% is unconditional and 72.2% is conditional. The energy sector's contribution will mainly come from increased deployment of renewable energy in power generation. The current Philippine Energy Plan (PEP) aims to increase the share of renewable energy generation to the total power generation mix to 35% in 2030 and 50% in 2040. Together with other measures related to low carbon fuels, the PEP estimated to contribute around 12% of NDC's emissions reduction targets.

State policies promoting and facilitating private sector investment in renewable energy projects are issued through primary legislations. The Department of Energy, being designated as the energy sector's policy making body, issues implementing rules and regulations for these primary legislations through department circulars. These legislations and DOE circulars also define the role of ERC which is to elaborate and issue specific rules and regulations supporting the implementation of these policies. **The role of ERC in the energy transition is therefore to ensure that the required regulatory frameworks are established to facilitate the operationalization of state policies which aim to increase the share of renewable energy in the country's electricity generation mix while enhancing electricity network efficiency, reliability and quality of service.**

Based on this study review, ERC's regulatory frameworks supporting energy transition can be categorised into the following: i) frameworks enabling market participation of renewable energy generators, ii) frameworks facilitating grid integration of renewable power generators, iii) frameworks promoting the development of renewable energy markets, iv) framework promoting private sector investments of renewable energy in unserved and underserved communities, v) framework facilitating renewable energy for electric vehicle charging, vi) framework promoting offshore wind energy development, and vii) frameworks promoting electricity network efficiency and enhancing service reliability and quality.

While **ERC's regulatory frameworks promoting energy transition are supported by primary legislation enacted by the Philippine Congress and policy issuances** from the Department of Energy, **the main challenge for ERC is to issue or update the needed rules and regulations and to act on regulatory applications within the required delivery timeframe.** Currently, there are still primary legislations that ERC has still to issue specific rules and regulations and well as to update outdated rules and regulations. In addition, it was also reported that ERC has still huge pending actions (e.g. regulatory applications and resolutions of quasi-judicial processes) under the Energy Virtual One-Stop Shop Act of 2019 which include those related to renewable energy investments and energy transition technologies..

These delayed actions from ERC could result in slower grid integration of renewable energy as technical regulations are either lacking or benchmarked with old standards, lower market participation as there are gaps and lack of clarity in market rules and regulations, and delayed implementation of policies and programs promoting higher deployment of renewable energy projects. Overall, this will lead to lower or delayed private sector investments, and failure to meet the energy transition target timelines as well as emission reduction target timelines of the NDC.

The relatively slow issuances of the required rules and regulations (including those rules and regulations that directly or indirectly affect grid integration, market development and private sector investments on renewable energy) and having accumulated pending regulatory actions can be attributed to the regulatory body's main weakness, which is having limited technical capacity caused by lack of financial autonomy, limited organisational capacity, high turnover rate, and the dissolution of the Grid Management Committee (GMC) and Distribution Management Committee (DMC).

This study has focused on technical regulations (which had been supported by GMC and DMC) related to the following frameworks supporting the country's energy transition: i) frameworks facilitating grid integration of renewable power generators, and ii) frameworks promoting network efficiency and enhancing service reliability and quality. In overall, the project supported and strengthened ERC's capacity in updating key energy transition regulations.

- Supported in updating the Philippine Grid Code and Distribution Code and strengthened ERC's capacity on technical aspects related to grid integration of renewable energies.
- Strengthened ERC's capacity on ancillary service regulation.
- Assisted ERC in updating and integrating smart grid rules in distribution utility planning manuals.

- Supported ERC in updating the Philippine Small Grid Guidelines and strengthened its capacity on technical aspects integrating renewable energy in isolated grids.
- Aided ERC in updating guidelines for monitoring power quality standards for distribution utilities and in updating regulations related to reliability indices standards for on-grid electric cooperatives.
- Strengthened ERC's capacity related to methodological approaches in clustering distribution utilities and in setting distribution utility system loss cap targets and assisted in updating the resolution on system loss caps.
- Assessed and categorised ERC regulatory frameworks in light of the country's energy transition, identified key challenges facing ERC, and assessed ERC's strengths, weaknesses, opportunities, and threats in delivering rules and regulations. In addition, identified energy transition frameworks where ERC rules and regulations are yet to be issued which could be potentially supported by ETP and other developmental cooperations.

ERC, with its current circumstances, employs a combination of internal and external support in undertaking technical studies required in preparing regulatory rules and regulations. The rules and regulations updated by this project were initially prepared by a combination of internal and external experts as mentioned in the preamble of those regulatory issuances. The Grid Management Committee (GMC) and Distribution Management Committee (DMC) were the internal technical support body established under ERC resolutions adopting the Philippine Grid Code and Philippine Distribution Code. External and subject matter experts were engaged to support GMC and DMC, and ERC in general, through combination of internal funding and donor-funding. This approach provided ERC a long-term sustainable support in updating outdated and in preparing new rules and regulations.

The dissolution of the GMC and DMC in 2018 has partly contributed to the slowing down in updating old and preparing new technical rules and regulations. Energy Transition Partnership's (ETP's) technical assistance came in an opportune time as ERC was in a situation without its internal technical support. ETP filled in some of the needed expertise through this project.

It must be mentioned that in another project supported by ETP (Philippine Grid Diagnostic and Smart Grid Road Map), the project recommended ERC to establish the Technical Working Group of the Philippine Electricity Market Corporation to fill in the gap. As a result, ERC issued Resolution no 4, series of 2023 which is a resolution constituting an interim Grid Management Committee for a specific purpose and perform limited functions under the Philippine Grid Code.

This study recommends that ERC to fully re-establish the GMC and DMC and fully restore their functions as stipulated in the Philippine Grid Code and Philippine Distribution Code as these committees are important in achieving ERC's role as facilitator to energy transition. **The study also recommends ETP to continue supporting ERC through engagements of subject matter specialists complementing ERC's internal technical body. Task 7 of this project (Strategic Review of ERC Regulations) identified regulatory frameworks supporting energy transition where ERC rules and regulations are yet to be issued. Overall, ETP's additional support forms part of a balanced and sustainable approach for ERC in strengthening its capacity and delivering its required regulatory actions and issuances, and in meeting its obligations related to energy transition.**

1. ENERGY TRANSITION AND REGULATORY CHALLENGES

1.1 NATIONALLY DETERMINED CONTRIBUTION TARGETS

As a background, the Philippine Government transmitted its intended nationally determined contribution (INDC) to the United Nations Framework Convention on Climate Change (UNFCCC) on 1 October 2015. The INDC is the initial and voluntary commitment to reduce the country's greenhouse gas emissions. The country pledged to reduce greenhouse gas (GHG) emissions in CO_2 equivalent of around 70% by 2030 relative to its business-as-usual (BAU) scenario during the period 2000-2030. The INDC was converted into the Nationally Determined Contribution (NDC) when the Philippine Government signed the Paris Agreement on 16 April 2016.

As part of the Paris Agreement provision that allows countries to review and update their NDCs every 5 years, the Philippine Government communicated to UNFCCC a calibrated NDC on 15 April 2021. The updated NDC commits the Government to reduce up to 75% of the cumulative GHG emissions during the period 2020-2030 from BAU scenario, of which 2.71% is unconditional and 72.2% is conditional. Unconditional refers to policies and measures which can be undertaken using nationally mobilized resources while conditional refers to policies and measures which require support or the means of implementation under the Paris Agreement. The cumulative BAU GHG gas emissions from key sectors (agriculture, wastes, industry, transport, and energy) during this period amounted to 3,340.3 million metric tons of carbon dioxide equivalent (MtCO2e).

The 2021 NDC is underpinned by the Republic Act No. 9729, also known as the Climate Change Act of 2009, as amended by Republic Act No. 10174, and the National Framework Strategy on Climate Change 2010-2022. In defining the country's international commitments, the NDC aligns its development targets with those in national development plans, the Philippine Development Plan 2017-2022, **Philippine Energy Plan 2018-2040**, the Philippine National Security Policy 2017-2022, National Climate Risk Management Framework of 2019 and the Sustainable Finance Policy Framework of 2020.

Energy transition targets stipulated in the Philippine Energy Plan 2018-2040 were used as basis for estimating energy sector GHG emission reduction targets in the NDC. The clean energy scenario of the most recent Philippine Energy Plan 2022-2040, which is slightly ambitious than the previous plan, aims to contribute around 12% reduction in GHG emissions for the NDC. This comes mainly from higher deployment of renewable energy technologies (35% and 50% share in the power generation mix by 2030 and 2040), higher biodiesel blending (5% blending for biodiesel starting 2022), increase in natural gas consumption (1.5% increase in gas consumption in industries and transport sector between 2020 and 2040), higher penetration rate of electric vehicles (10% penetration rate of electric vehicles by 2040), and energy efficiency improvement (5% savings from oil products and electricity by 2040).

1.2 ROLE OF THE ENERGY REGULATORY COMMISSION (ERC) IN THE ENERGY SECTOR TRANSITION

The current power industry structure is the outcome of the national policy design to restructure the industry through the Republic Act No. 9136 also known as the Electric Power Industry Reform Act (EPIRA) of 2001. The EPIRA created 4 main industry segments: generation, supply, transmission and distribution. The generation and supply are competitive businesses while the transmission and distribution are regulated sectors.

Aside from creating independent grid operations, The EPIRA likewise further facilitated competition and efficiency by establishing a wholesale electricity spot market (WESM) and enabling retail competition. The WESM was to be administered by the Market Operator. The Market Operator, in accordance with rules approved by the Department of Energy (DOE), would provide the dispatch schedules to the Grid Operator, which would centrally dispatch all generation facilities connected directly or indirectly to the transmission system.

Under EPIRA, the DOE is the main policy making and planning body for the power sector and for supervising the reform process. Among its key responsibilities are the following: preparation and updating of the Philippine Energy Plan (PEP) and Power Development Plan (PDP); development of policies and procedures that provide incentives encouraging industry participants to supply capacity and reserve requirements, and for consuming sector to enhance energy efficiency; and formulation and implementation accelerating the development and commercialising non-conventional energy systems.

The EPIRA established the Energy Regulatory Commission (ERC) as an independent, quasi-judicial regulatory body, responsible for promoting competition, encouraging market development, ensuring customer choice and penalising abuse of market power. It is mainly responsible for the technical and economic regulation of the power industry. Among its functions related to technical and economic regulation are the following: determination, fixing and approving of the transmission and distribution charges and retail rates; promulgation and enforcement of a national grid code and distribution code which include performance and financial standards; enforcement of the regulations governing the operations of the spot market; and approval bilateral supply agreements and ancillary service agreements.

The electricity industry's contribution to the country's energy transition focuses on higher deployment of low carbon power technologies and reducing the share of fossil fuel-based generation. Increasing the share of renewable energies however requires changes in electricity market, institutional arrangements, structures, and incentive mechanisms. The state policies that directly or indirectly promote renewable energy development are the following:

- Republic Act No. 9136 or the Electric Power Industry Reform Act of 2001. Promote the utilization of indigenous, and new and RE resources in power generation to reduce dependence on imported energy.
- Republic Act No. 9513 or the Renewable Energy Act of 2008. Accelerate the exploration, development, utilization, and commercialization of RE
- Republic Act No. 11234 or the Energy Virtual One-Stop Shop Act of 2019. Online platform to streamline the processing of energy application.
- Republic Act 11285 or the Energy Efficiency and Conservation Act. Institutionalize energy efficiency and conservation as a national way of life and promote/encourage the development and utilization of efficient renewable energy technologies.
- Republic Act No. 11697 or the Electric Vehicle Industry Development Act of 2022. Establish the Comprehensive Roadmap for the Electric Vehicle Industry to accelerate the development, commercialization and utilization of EVs.
- Republic Act No. 11646 or the Microgrid Systems Act. Fill the gap in the country's goal of achieving 100 percent electrification by encouraging the installation of microgrids in unserved and underserved areas.
- Executive Order No. 21. Directing the establishment of the Policy and Administrative Framework for the Offshore Wind Development.

The role of ERC in the energy transition is therefore to ensure that the required regulatory frameworks are established to facilitate the operationalization of the above state policies which aim to increase the share of renewable energy in the country's electricity generation mix while enhancing electricity network efficiency, reliability and quality of service.

ERC introduced regulatory frameworks that facilitate higher grid integration of renewable energies and stimulating private sector investments in renewable energies. These frameworks can be categorized as the following i) frameworks enabling market participation of renewable energy generators, ii) frameworks facilitating grid integration of renewable power generators, iii) frameworks promoting the development of renewable energy markets, iv) framework promoting private sector investments of renewable energy in unserved and underserved communities, v) framework facilitating renewable energy for electric vehicle charging, vi) framework promoting offshore wind energy development, and vii) framework promoting supply-side efficiency and enhancing service reliability and quality. Specific policies and regulations related to these frameworks are summarized in Table 1.

Table 1. Summary of ERC Regulatory Framework, Primary Legislation and Policies, and Relevant ERC Regulations

Primary Legislation and Policies	Relevant/Recent ERC Regulations
1. Frameworks Enabling Market Participation of Renewable Energy Generators	
• RA No. 9136 or the Electric Power Industry Reform Act of 2001 • RA No. 9513 or the Renewable Energy Act of 2008	• ERC Case No.2005-056 RC. Administered Price Determination Methodology for the Philippine Wholesale Electricity Spot Market.

• DC2021-03-0009 Adopting a General Framework Governing the Operationalisation of the Reserve Market in the WESM and Providing Further Policies to Supplement DC2019-12-0018.	• ERC Case No. 2023-002 RC. Rules on the Price Determination Methodology for the Implementation of the Co-Optimized Energy and Reserve Market in the WESM.
2. Frameworks Facilitating Grid Integration of Renewable Power Generators	
• RA No. 9136 or the Electric Power Industry Reform Act of 2001 • RA No. 9513 or the Renewable Energy Act of 2008	• The Philippine Grid Code 2016 • The Philippine Distribution Code 2016 • ERC Resolution No. 7, series of 2013, Resolution Adopting and Approving Addendum to Amendment No. 1 of the Philippine Grid Code (PGC) Establishing the Connection and Operation Requirements for Variable Renewable Energy (VRE) Generating Facilities
3. Frameworks Promoting the Development of Renewable Energy Markets	
• RA No. 9513 or the Renewable Energy Act of 2008 • DOE Circular DC2009-05-008 Rules and Regulations Implementing Republic Act 9513. • DOE Circular DC2015-007-0014. Prescribing the Policy for Maintaining the Share of Renewable Energy Resources in the Country's Installed Capacity. • DOE Circular No. DC2020-07-0017 Guidelines Governing the Policy for the Conduct of Green Energy Auction Program in the Philippines • DOE Circular No. DC2021-011-0036 Revised Guideline for the Green Energy Auction Program in the Philippines • DOE Circular No. DC2023-10-0029. Providing Specific Auction Policy and Guidelines for Non-Fit-Eligible Renewable Energy Technologies in the Green Energy Auction Program. • DOE Circular No. DC2017-12-0015 Promulgating the Rules and Guidelines Governing the Establishment of Renewable Portfolio Standards for On-Grid Areas (RPS rules) • DOE Circular DC2023-05-0015 Amendments to the RPS Rules for On-Grid Areas • DOE Circular DC2022-06-0019. Declaring the Interim Commercial Operations of the Renewable Energy Market • DOE Circular No. DC2018-07-0019. Promulgating the Rules and Guidelines Governing the Establishment of the Green Energy Option Program)	<u>Feed-in Tariff</u> • ERC Resolution No. 16, series of 2010, Resolution Adopting the Feed-in Tariff Rules • ERC Resolution No. 15, series of 2012 Amendment to the Feed-in Tariff Rules • ERC Case No. 2011-006. Feed-in Tariff for electricity generated from biomass, ocean, run-of-river hydropower, solar and wind energy resources. • ERC Resolution No. 14, series of 2023. Feed-In Tariff Rate for the Extension Period (3rd Round) of Run-Of-River (ROR) Hydropower Until the Full Subscription of the 250MW Installation Target. <u>Green Energy Auction</u> • ERC Resolution No 06, series of 2023. Green Energy Auction Reserve (GEAR) Prices for the Second Round of Auction. <u>Renewable Energy Market</u> • ERC Proposed Resolution on the Determination of the Renewable Energy Certificate Price Cap <u>Green Energy Option Program</u> • ERC Resolution No 08, series of 2021 Resolution Adopting the Rules for the Green Energy Option Program. <u>Net Metering Program and Distributed Energy Resources</u> • ERC Resolution No. 09, series of 2013. Rules Enabling the Net-Metering Program. • ERC Resolution No. 6, series of 2019. Amendment to the Rules Enabling the Net-Metering Program for Renewable Energy • ERC Resolution No. 11, Series of 2022. A Resolution Adopting the Rules Governing Distributed Energy Resources (DER)
4. Framework Enabling Private Sector Investments of Renewable Energy in Unserved and Underserved Communities	
• RA No. 11646 or the Microgrid Systems Act • DOE Circular DC 2022-05-0017. Rules and Regulations to Implement Republic Act No. 11646.	• Technical and Service Performance Standards for Microgrid System (*pending*)
5. Framework Facilitating Renewable Energy for Electric Vehicle Charging	
• RA No. 11697 or the Electric Vehicle Industry Development Act of 2022 • Implementing Rules and Regulations of RA No. 11697.	• Electric Vehicle Charging Rules (*pending*)
6. Framework Promoting Offshore Wind Energy Development	
• Executive Order No. 21. Directing the establishment of the Policy and Administrative Framework for the Offshore Wind Development. • Department Circular DC2023-05-0013. Implementing Guidelines of Executive Order No. 21.	• Offshore Wind Technology Rules (*pending*)
7. Frameworks Promoting Electricity Network Efficiency and Enhancing Power Reliability and Quality	
• RA No. 9136 or the Electric Power Industry Reform Act of 2001	• Resolution 10, series 2018 (A Resolution Clarifying the System Loss Calculation and Providing the Effectivity of the Rules for Setting the Distribution System Loss Cap)

	• Resolution No 11, series of 2006 (A Resolution Adopting the Guidelines for the Monitoring of Power Quality Standards for Distribution Utilities). • Resolution No 1, series of 2013 (Reliability Indices Standards for On-grid ECs).

1.3 KEY CHALLENGES FACING THE ENERGY REGULATORY COMMISSION

1.3.1 Main Challenge

While ERC's regulatory frameworks promoting energy transition are supported by primary legislation enacted by the Philippine Congress and policy issuances from the Department of Energy, the **main challenge** for ERC is **to issue or update the needed rules and regulations and to act on regulatory applications within the required delivery timeframe.**

- Among the state legislations, ERC has yet to issue rules and regulations related to Republic Act No. 11646 (Microgrid Systems Act of 2021), Republic Act No. 11697 (Electric Vehicle Industry Development Act of 2022), and Executive Order No. 21 of 2023 (Directing the establishment of the Policy and Administrative Framework for the Offshore Wind Development). Also, there are rules and regulations that were issued more than 5 years earlier which require updating to align with recent technological developments and new policy issuances from the Department of Energy.
- In addition, it is reported that ERC has around 2,000 pending actions (regulatory applications and resolutions of quasi-judicial processes) under Republic Act No. 11234 (An Act Establishing the Energy Virtual One-Stop Shop for the Purpose of Streamlining the Permitting Process of Power Generation, Transmission, and Distribution Projects (Energy Virtual One-Stop Shop Act of 2019). The Act requires ERC to respond to regulatory applications (certificate of compliance and licenses) within 60 calendar days and 270 calendar days for quasi-judicial cases. These pending actions however do not only cover those related or indirectly affecting higher deployment of renewable energies but also the whole regulatory actions related to ERC's overall mandate.

These delayed actions from ERC could result in slower grid integration of renewable energy as technical regulations are either lacking or benchmarked with old standards, lower market participation as there are gaps and lack of clarity in market rules and regulations, and delayed implementation of policies and programs promoting higher deployment of renewable energy projects. Overall, this will lead to lower private sector investments, and failure to meet the energy transition targets.

The study carried out a SWOT analysis to understand the weaknesses, opportunities and threats related to the ability of ERC to optimise its performance with respect to issuing the needed regulations to facilitate energy transition in the energy sector.

While ERC's strength lies on the clear legal foundation of its regulatory frameworks and relative degree of independence, its main weakness is related to limited technical capacity caused by lack of financial autonomy, limited organisational capacity and high turnover rate. These weaknesses contributed to the delay in issuing needed new or updated rules and regulations. Opportunities exist to address lack of capacity through support from international and national agencies on various capacity building programs. Also, there is a pending legislation reforming the agency that could partly deal with financing and strengthening capacities. Threats will continue to exist that could affect retaining its experienced staff such as the requirement to conform with government employment regulation and inadequate funding. This also threatens ERC's ability to respond to regulatory applications in a timely manner. This is summarised in Table 2 below.

Table 2. SWOT Analysis

STRENGTHS	WEAKNESSES
• Regulatory frameworks emanate from clearly defined policy frameworks from primary legislation and policy-making body. • Regulator has moderate to high degree of independence.	• Low organisational and financial (fiscal) autonomy. • Limited organizational capacity to manage the increasing scope of regulation. • High turnover rate.

	• Dissolution of the Grid Management Committee and Distribution Management Committee
OPPORTUNITIES	**THREATS**
• Technical assistance from international and national funding agencies. • Donor supported competency program. • Increasing competency of regulated entities. • Increased transparency, accountability, and independence.	• Requirement to conform with government employment regulation. • Inadequate funding.

1.3.2 Strengths

1.3.2.1 Legal underpinnings of regulatory frameworks

ERC's role in power sector development and its regulatory frameworks are clearly defined in primary legislations (Act of Congress) and policy issuances from the Department of Energy (DOE). Specific rules and regulations issued by ERC have underpinnings from primary legislations and state policies.

Regulatory frameworks 1) supporting market participation of renewable energy generators in the electricity market, and 2) promoting higher grid integration of renewable energy projects in the electricity grid are defined in Republic Act No. 9136 (an Act Ordaining Reforms in the Electric Power Industry, Amending for the Purpose Certain Laws and for other Purposes) or the Electric Power Industry Reform Act of 2001, Republic Act no. 9513 (An Act Promoting the Development, Utilization and Commercialization of Renewable Energy Resources and for Other Purposes), or the Renewable Energy Act of 2008, and policy issuances from the Department of Energy supporting and elaborating these acts.

The regulatory framework 3) enhancing renewable energy incentives and market mechanisms is mainly outlined in the Renewable Energy Act of 2008 and in the circulars issued by Department Energy on the implementing rules and regulation of the Act, and on the elaboration of policy design related to various market mechanisms enhancing private investments on renewable energy projects.

As also mentioned earlier, ERC has yet to elaborate regulatory frameworks related to 4) deployment of renewable energy for rural electrification under Republic Act No. 11646 (Microgrid Systems Act of 2021), 5) the use of renewable energy for electric vehicle charging under Republic Act No. 11697 (Electric Vehicle Industry Development Act of 2022), and 6) private sector investments on offshore wind under the Executive Order No. 21 of 2023 (Directing the establishment of the Policy and Administrative Framework for the Offshore Wind Development).

1.3.2.2 Moderate to high degree of independence

Another key strength of ERC in developing and implementing its regulatory frameworks supporting energy transition is its moderate to high degree of independence.

Political independence from the government is considered moderate due to the fact that ERC officials (Chairperson and members of the Commission) are appointed by the President, although with fixed terms of 7 years with appointment on a staggered and basis, and its budget are from the government appropriations.

Independence from stakeholders is also considered moderate as situations could arise that can compromise regulatory independence. These are i) regulated entities could manipulate ERC through information asymmetry (regulated entities have more knowledge and information about power sector activities and operations than ERC), and ii) members of the Commission could be appointed from the regulated entities making them prone to philosophical capture as they have been associated, understand and sympathize with the problems of the regulated entities. On the other hand, despite their fixed term appointments, they are under considerable pressure from the public to ensure that prices of electricity are not considered excessive.

With respect to decision-making, ERC's independence is deemed to be high. ERC comes up with decisions on its own and agencies under the Executive Branch cannot interfere. ERC's orders and decisions in the exercise of quasi-judicial functions, are only appealable through the Judicial Branch (Court of Appeals and Supreme Court). Philippine courts generally accord great respect to factual findings of administrative agencies within their technical area of expertise. ERC's independence is considered a strength since its decisions are determined based on an objective, transparent and fair process.

1.3.3 Weaknesses

The focus of this section is to understand why ERC could not operate and perform at its optimal level and could not deliver and develop required regulatory frameworks including those frameworks that promote energy transition in a timely manner. As mentioned earlier, all the weaknesses below contribute to the delay in issuing rules and regulations which also delay private sector investments in renewable energy projects, and consequently slows down energy transition and missing the emission reduction target milestones of the NDC.

1.3.3.1 Low organisational and financial (fiscal) autonomy

While ERC is considered to have moderate high independence from political interference, independence from stakeholders, and independence in decision making, its organisational independence is however ranked to be low due the fact that ERC lacks organisational and fiscal autonomy. Organisational autonomy is considered to exist when the regulator has maximum control of their input of resources. This is equivalent to having a stable source of funding, e.g. a fee levied on regulated industries or consumers, and the authority to control appointment, allocation, promotion, dismissal, and salary policies. ERC's annual budget is taken from general appropriations act (GAA) which needs to be approved by the Congress yearly. Revenues generated by the agency through applications and licenses are transferred to the national treasury. It is for this reason that ERC is having problems on retaining and attracting qualified and experienced staff. *The lack of qualified technical staff has direct implications on timely issuances of regulations and response to regulatory applications which include regulations supporting energy transition.*

1.3.3.2 Limited organizational capacity to manage the increasing scope of regulations

- The Renewable Energy Act of 2008 did not prescribe organizational changes within ERC

Since its establishment under the Electric Power Industry Reform Act of 2001, ERC's scope of regulation has increased following new laws and corresponding policy issuances from the Department of Energy. The passage of Renewable Energy Act of 2008 introduced new market mechanisms and regulatory structures that are not covered by the Electric Power Industry Reform Act. While the Renewable Energy Act called for the establishment of the National Renewable Energy Board (NREB) and creation of the Renewable Energy Management Bureau (REMB) within the Department of Energy, the Act however did not prescribe organisational changes within ERC despite its additional functions. *This resulted in lack of dedicated unit focusing on renewable energy regulations, thus affecting ERC's capacity to issue required regulations in a timely manner.*

- Limited human resources

While there was an increase in total number of permanent positions in ERC since its establishment in 2001 (there were 220 permanent positions in 2001 and increased to 309 at the end of 2023), it is regarded that this number is inadequate to cope with the increasing regulatory functions brought by new legislations.

It was reported that each staff handles up to 10 applications at the same time. These are mainly carried out by junior and senior staff. Evaluation results from each staff are then passed on to Supervisors and Division Chiefs, filing up the applications for review and final evaluation, and then prepared for presentation to the Commission. As a measure to address backlogs in key actions, ERC resorts to hiring contracts of services (COS), or temporary employees. The number of temporary employees has reached 269 at the end of 2023, which is almost the same number as the permanent positions in ERC. *This indicates that the number of permanent employees is not enough to handle the number of regulatory evaluations (including those regulatory evaluations involving renewable energy and other regulatory aspects of energy transition). This is further exacerbated by the fact that some of the temporary staff were supposed to carry out regular staff functions but several of them were only assigned or asked to perform administrative tasks.*

- Inadequate technical competencies

One of the main reasons for the backlog of regulatory issuances and key decisions (including those related to renewable energy and other regulatory aspects of energy transition) is due to the deferral of cases by the Commission due to staff's incomplete or unsatisfactory technical evaluation. This is symptomatic to shortage of technical competencies.

Section 40 of the EPIRA called for the enhancement of technical competence of ERC staff (following its mandate and functions brought about by the law). Sec 40 provides for the "establishment of rigorous training programs for its staff for the purpose of enhancing the technical competence of the ERC in the following areas: evaluation of the technical performance and monitoring of compliance with service and performance standards,

performance-based rate-setting reform, environmental standards, *technical standards related to grid integration of renewable energy*, and such other areas as will enable the ERC to adequately perform its duties and functions."

The power industry reforms (industry unbundling and introduction of competitive markets) in the Philippines are patterned to those in many industrialised countries. Competitive electricity markets are dynamic and requires constant upgrading in regulatory skills to address new challenges and issues facing the market. Technical competencies (including those competencies related to renewable energy and energy transition) of the staff need to be constantly upgraded to ensure timely and appropriate regulatory intervention. A related concern is that ERC lacks financial resources to undertake capacity building programs.

1.3.3.3 High turnover rate

It was reported that 22 staff left ERC in December 2023, of which 72% were technical staff involved in primary regulatory functions. ERC also noted that those who left joined the industry. While the industry offers higher salary, other reasons for higher turnover rate is the heavy volume of work at ERC, and with the Energy Virtual One-Stop Shop (EVOSS) Act, there is also an unfortunate prospect of being penalized for not meeting timeline requirements of EVOSS processes. *The high turnover rate of technical staff affects the timely issuances of regulations and response to regulatory applications (including those related to renewable energy related regulations and applications).*

1.3.3.4 Dissolution of the Grid Management Committee and Distribution Management Committee

ERC had been supported by the Grid Management Committee (GMC) and Distribution Management Committee (DMC), established under the Philippine Grid Code and Philippine Distribution Code, in terms of facilitating monitoring of compliance with the technical codes, overseeing the developments of the technical codes, and providing technical assistance to the ERC. Due to issues related to funding, ERC internally dissolved these committees in 2018. *The dissolution of GMC and DMC left ERC without technical adviser and contributed to the delays in updating the technical standards of grid and distribution codes and other related technical regulations.*

1.3.4 Opportunities

1.3.4.1 Technical assistance from international and national funding agencies

Various international funding institutions are providing technical assistance to ERC supporting its functions stipulated in Electric Power Industry Reform Act and Renewable Energy Act. For example, the Asian Development Bank (ADB) is recently supporting a study on Ancillary Services. Similarly, the Energy Transition Partnership (ETP) is currently supporting ERC update its current regulations related to integration of variable energy technologies, battery storage, smart grid, power quality and reliability, advanced metering infrastructures in the Philippine Grid Code, Philippine Distribution Code, Philippine Small Grid Guidelines, and utility planning manuals.

On the other hand, the National Economic Development Authority (NEDA) is currently providing financial support to meet the mandated timelines of ERC processes under the Energy Virtual One-Stop Shop (EVOSS) Act. These EVOSS processes include the quasi-judicial processes on the Ancillary Services Procurement Agreement, Power Supply Agreement, CAPEX applications, Point-to-Point Transmission and Distribution Interconnection, and the permitting processes on issuance of Certificate of Compliance for generators and licensing of Retail Electricity Suppliers.

1.3.4.2 Donor supported competency program

One recommendation to strengthen ERC's governance is to increase the number of its technical staff with strong competencies in the field of energy, law, economics, and finance. To put this recommendation into effect, a post-graduate program (diploma or master's degree) on energy economics and policy could be offered in-house during weekend and after office hours to ERC technical staff, with ERC partnering with a reputable university. This program could be financed through bilateral and/or multilateral cooperation programs.

On the other hand, ERC can prepare internally its own annual training program. For example, ERC middle and top management are attending various training courses abroad to enhance their knowledge base. It has been assessed that there is a need to increase knowledge and competence in economic regulation across the ERC hierarchy.

1.3.4.3 Increasing competency of regulated entities

A capacity building program to increase the competence of ERC's clients (regulated entities) in preparing applications could also lead to long-term compliance to Energy Virtual One-Stop Shop (EVOSS) Act and meet its ultimate objective of shortening the time needed to process applications and issue approvals or permits. The University of the Philippines, for example, has been running capacity building programs for the National Electrification Authority (NEA) and electric distribution cooperatives. These programs can include compliance with regulatory applications and could be integrated in technical assistance projects for electric cooperatives.

The potential evolution of the above training programs is to generate certified regulatory compliance officers and that regulated entities may be required to have this type of expertise within their organisations. This is similar to the Energy Efficiency and Conservation Act which obliges firms, government agencies and local governments to have within their organizations certified energy managers (CEMs) or certified energy officers (CEOs) to lead in complying the requirements of the Law.

1.3.4.4 Increased transparency, accountability, and independence

The Electric Power Industry Reform Act provides that the Chair of the Commission shall also act as the Chief Executive Officer of the Commission. There is a pending Senate Bill, Senate Bill 1490 of 2017 An Act Enhancing the Governance Structure of the Energy Regulatory Commission or the ERC Governance Act of 2017 that recommends the separation of the Chairperson and Chief Executive Officer functions to equally distribute its regulatory powers and functions among its officers fostering an appropriate balance of power, increased accountability and better capacity for independent decision making.

The Bill proposes the delegation of the CEO functions of the Chairperson to the Executive Director (ED) of ERC. Under this proposal, the ED will serve as the manager of the regulating body and lead the management of the daily operations of the ERC, assume full responsibility for the overall supervision and control of all divisions, units and services of the ERC, and initiate investigations and recommend administrative sanctions against erring employees, among others.

To enhance transparency and accountability, the Bill recommends that all meetings of the Commission shall be open to the public. This means that: (1) the public may participate during public hearings; (2) a live web streaming or any related technology of the open meeting shall be posted; and (3) the transcript of stenographic notes and minutes of the open meeting shall be made available to the public.

On the other hand, the Commission can hold closed Executive Sessions to (1) discuss the discipline or dismissal of or complaints or charges brought against a public officer, employee, or staff of ER, and (2) discuss trade secrets, confidential, competitively sensitive, or other proprietary information.

1.3.5 Threats

The threats discussed below may potentially impact the ability of ERC to deliver the required regulations and actions to regulatory applications in a timely manner, resulting to delayed or reduced investments on renewable energy projects, and consequently to failure in meeting the emissions reductions target timelines of the NDC.

1.3.5.1 Requirement to conform with government employment regulation

While ERC is exempted from the Salary Standardization Act, though salaries of its staff, like other government agencies, remain regulated by the government. ERC's organizational structure and permanent positions are also approved by the government. Best practices in regulatory governance indicate that one criterion of regulatory autonomy is that the regulatory agency should not be required to follow government employment regulations. Another criterion is that the pay scale of the regulatory agency should not be linked to government pay scale or be 90% of industry pay scale. *With lacking managerial autonomy, ERC finds it difficult to retain or attract qualified and experienced staff (including those with expertise related to renewable energy and other aspects of energy transition). This may contribute to the delay in the issuance of regulations and consequently delayed investments on energy transition technologies.*

1.3.5.2 Inadequate funding

The main reason why ERC salary scale is lower than what could be desired is that it is dependent on the national government budget allocation for funding its operations and services. One of the principles for the effective governance of regulators is that funding levels should be adequate enabling the regulator to operate efficiently in fulfilling the objectives set by the government and by legislation. ERC's funding for it operations and services comes only from the annual national budget through the General Appropriations Act (GAA), and

the fees collected from the applications and licenses are transmitted to the national treasury. *This may result in the ability of ERC to recruit necessary number of technical staff for the operation of its regulatory functions, and again may contribute to the delay of the issuances of rules and regulations.*

2. TECHNICAL REGULATIONS SUPPORTING ENERGY TRANSITION

The electricity industry's contribution to the country's energy transition, as mentioned earlier, focuses on higher deployment of low carbon power technologies reducing the share of fossil fuel-based generation and improving energy efficiency. Increasing the share of renewable energies and improving energy efficiency however require changes in electricity market, institutional arrangements, structures, and incentive mechanisms. ERC's regulatory frameworks supporting the energy transition follows the state policies promoting higher deployment and grid integration of renewable energies.

ERC's regulatory frameworks, as mentioned in the previous section, are categorised into the following: i) frameworks enabling market participation of renewable energy generators, ii) frameworks facilitating grid integration of renewable power generators, iii) frameworks promoting the development of renewable energy markets, iv) framework promoting private sector investments of renewable energy in unserved and underserved communities, v) framework facilitating renewable energy for electric vehicle charging, vi) framework promoting offshore wind energy development, and vii) frameworks promoting network efficiency and enhancing service reliability and quality.

This study focused on responding to technical barriers to deployment of renewable energy generation and improvement of supply-side energy efficiency, power reliability and quality which are frameworks ii) and vii) above.

One of the weaknesses of the Energy Regulation Commission (ERC), as also mentioned in the previous section, is its limited organisational capacity to cope with the increasing scope of regulation. The main objective of this project is to support and strengthen ERC's capacity related to issuing technical regulations promoting energy transition. The project has carried out the tasks shown below while the corresponding task accomplishments are summarised in the following subsections.

Renewable Energy Integration

- Task 1. Revisiting the Existing Technical, Operating and Performance Standards for Renewable Energy Generators
- Task 2. Rules and Regulations for Ancillary Services Responsive with Variable Renewable Energy Technology
- Task 3. Rules and Regulations for Smart Grid Facilities

Network Efficiency, Power Supply Reliability and Quality

- Task 4. Revisions and Amendments on the Existing Philippine Small Grid Guidelines
- Task 5. Power Quality and Reliability Regulations
- Task 6. Distribution System Loss Cap Review

Strategic Analysis of ERC's Regulations with Respect to Energy Transition

- Task 7. Strategic Review of ERC Regulations

2.1 UPDATING THE PHILIPPINE GRID CODE AND DISTRIBUTION CODE

Integrating variable renewable energy generators in electricity networks requires connection standards and specific requirements for operation. These requirements are stipulated in national grid and distribution codes. Under the Electric Power Industry Reform Act of 2001, the regulatory tasks of the ERC include the issuance of technical standards through the Philippine Grid Code (PGC) and Philippine Distribution Code (PDC). The first PGC and PDC were issued under the ERC Resolution no 115, series of 2001 (Adoption of the Philippine Grid Code and Philippine Distribution Code).

The PGC includes among others, technical standards for conventional and renewable energy generators as well as standards for ancillary services necessary for reliable operation of the transmission system and distribution system respectively.. The first grid code was issued in 2002, and the first amendment was made in 2007 under ERC Resolution No. 14, series of 2007 (Resolution Adopting and Approving Amendment No 1 to the Philippine Grid Code). With the Renewable Energy Law passed in 2008, ERC issued an amendment under ERC Resolution No. 7, series of 2013 (Resolution Adopting and Approving Addendum to Amendment

No. 1 of the Philippine Grid Code Establishing the Connection and Operation Requirements for Variable Renewable Energy Generating Facilities), providing connection and operational requirements for variable renewable energy (VRE) generating facilities.

ERC issued an updated Grid Code under Resolution no. 22, series of 2016 (A Resolution Approving the Publication of the Approved Philippine Grid Code 2016 Edition) introducing frequency response which is affected by affected by the increase of intermittent renewable energy generators. The updated Grid Code also defined frequency control (primary control, secondary control and tertiary control), a new classification of reserves from contingency, regulating and dispatchable, to primary, secondar and tertiary, as well as the introduction of a frequency reserve obligation, among others.

The Philippine Distribution Code (PDC) on the other hand outlines the implementation of the Wholesale Electricity Spot Market (WESM) and connection requirements for new and renewable energy sources. ERC issued an updated PDC in 2017 under Resolution no 2, series of 2018 (A Resolution Approving the Philippine Distribution Code 2017 Edition). This PDC has considered the adoption of new and emerging technologies including the variable renewable energy. This latest PDC revision was also harmonised with related provisions of the PDC 2016 Edition.

The main objective of this task was to further update and align the technical standards of the PGC and PDC to international best practices and recent standards of the International Electrotechnical Commission (IEC) and Institute of Electrical and Electronics Engineers (IEEE) as well as integrate new provisions for variable renewable energy and new technologies, and to harmonise the two codes. The project accomplished the following:

- Identification of gaps in the PGC 2016 and PDC 2017 through review of experiences and best practices in foreign jurisdictions which led to recommendations to shift to more advanced technical standards and introduction of additional provisions to facilitate higher grid integration of variable renewable energy and other emerging technologies.
- Strengthened ERC capacity and its stakeholders with respect to power quality standards, requirements for integrating variable renewable energy plants and ancillary services under PGC, and performance standards and requirements for embedded generators under PDC.
    - 2 webinars participated by ERC and DOE
    - 2 focus group discussions (FGDs) participated by ERC, DOE, TRANSCO, grid operator, market operator, and distribution utilities.
- Updated the renewable energy and new technology sections of the Philippine Grid Code and Philippine Distribution Code.
- Presentation of the proposed changes to ERC Commissioners to facilitate approval of the proposed changes and adoption of the revised technical codes.
- Supported ERC in public consultations of proposed revisions of PGC and PDC.

2.2 STRENGHTENING ERC'S CAPACITY TO ESTABLISH ANCILLIARY SERVICES REGULATIONS

The integration of renewable energy generators in the electricity network creates new challenges in system operation as it threatens grid stability and reliability. To address this issue, advanced technologies and control techniques need to be introduced to reduce the fluctuation and provide ancillary services to the grid such as voltage, frequency, and power control.

The Electric Power Industry Reform Act of 2001 specifies the grid operator to be responsible for the procurement of ancillary services subject to the approval of the Energy Regulatory Commission (ERC). ERC approved the grid operator's ancillary services procurement plan (ASPP) in 2006 under ERC Case no. 2002-253 and the Ancillary Services-Cost Recovery Mechanism through its Decision in 2007 under ERC Case no. 2006-049 RC. The Department of Energy (DOE) issued Department Circular no. DC2019-12-0018 providing for a general framework governing the provision and utilisation of ancillary services in the grid, and Department Circular no. DC2021-10-0031 prescribing the policy for the transparent and efficient procurement of ancillary services by the system operator. Under the former, the DOE directed ERC to issue relevant rules and regulations for ancillary services while in the later to provide regulatory support. Currently, ERC has drafted but not yet issued rules and regulations for ancillary services.

The main objective of this task was to update the ancillary services provisions of the PGC and to strengthen ERC's capacity on ancillary services regulations. The project accomplishments are the following:

- Assessment of gaps in the ancillary services provision of the PGC through a review of international best practices which resulted in recommending on updating the generator requirements, procurement of ancillary services and introducing fast frequency control and fast frequency reserve as ancillary services.
- Alignment of assessment and recommendations with a review study on ancillary services by the Asian Development Bank through consultative meetings.
- Generation of knowledge material on cost methodologies for ancillary services.
- Strengthened the capacity of ERC and its stakeholders through a 3-day seminar on ancillary services concepts, international best practices, and recommended measures for the ancillary services provision in the PGC.

2.3 UPDATING THE RULES AND REGULATIONS FOR SMART GRID FACILITIES

Higher integration of variable renewable energy systems (including distributed, hybrid and microgrid systems) requires a flexible, reliable, and secure electricity grid that integrates innovative technologies, communication technologies, real time monitoring and control systems.

The Department of Energy (DOE) issued a circular DC2020-02-003 providing a smart grid policy framework for the Philippine Electric Power Industry and Road Map for Distribution Utilities. This Circular requires ERC to update the distribution planning manuals (for both electric cooperative and investor-owned utilities).

The main objective of this task was to update ERC Resolution no. 26, series of 2009 (the section on Electric Cooperative Distribution Utility Planning Manual) and ERC Resolution no. 17, series of 2011 (Resolution Adopting the Investor-Owned Electric Distribution Utility Planning Manual) integrating smart grid provisions in these manuals. The project accomplishments are the following:

- Strengthened the capacity of ERC and its stakeholders on smart grid regulations.
    - Webinar on smart grid concepts.
- Integration of smart grid and advanced metering provisions in the following planning manuals:
    - i) Investor-Owned Electric Distribution Utility Planning Manual, and
    - ii) Electric Cooperative Distribution Planning Manual
- Generation of knowledge material on international technical standards for smart grids..

2.4 REVISING AND AMENDING THE EXISTING PHILIPPINE SMALL GRID GUIDELINES

Targets for renewable energy share in the power generation mix under the current Philippine Energy Plan do not only cover those to be connected to the national grid but also those to be integrated in small or island grids. In compliance with the Electric Power Industry Reform Act of 2001, ERC issued Resolution no. 10, series of 2013 (A Resolution Adopting the Philippine Small Grid Guidelines). The main objective of this tasks was to update and align the technical standards of the PSSG with international best practice and recent standards of the International Electrotechnical Commission (IEC) and Institute of Electrical and Electronics Engineers (IEEE) standards as well as integrate new provisions for variable renewable energy and new technologies, and to harmonise the guidelines with the PGC and PDC. The project accomplished the following:

- Assessment of gaps in the PSGG through review of experiences and best practices in foreign jurisdictions which led to recommendations to shift to more advanced technical standards and introduction of additional provisions to facilitate higher grid integration of variable renewable energy and other emerging technologies.
- Strengthened ERC capacity and its stakeholders with respect to requirements for integrating variable renewable energy plants and new technologies, small grid planning, operations and scheduling and dispatch.
    - 1 webinar on small best practice grid technical standards

    - 1 focus group discussion on PSGG technical concepts and standards, and proposed revisions.
- Updated and harmonised the generator connection requirements, and small grid planning, operations and scheduling and dispatch sections of the PSGG with PGC and PDC.

2.5 UPDATING POWER QUALITY AND RELIABILITY REGULATIONS

Higher grid integration of variable renewable energy power generators, as mentioned earlier, threatens grid stability and reliability, and affects power quality. As a measure to monitor power quality, ERC issued Resolution no 11, series of 2006 (A Resolution Adopting the Guidelines for the Monitoring of Power Quality Standards for Distribution Utilities). In addition, ERC also issued a resolution on reliability indicators under Resolution No 1, series of 2013 (Resolution Adopting the Distribution Management Committee (DMC) Reliability Indices Standards for On-Grid Electric Cooperatives).

The main objective of this task is to update the guidelines for monitoring of power quality standards and update the reliability indicators. The project accomplishments are the following:

- Assessment of gaps through review of international best practices which led to updating Resolution no 11, series of 2006 (A Resolution Adopting the Guidelines for the Monitoring of Power Quality Standards for Distribution Utilities).
- Analysis of updated data for the last 7 years (2016-2022) which resulted to updating Resolution No 1, series of 2013 (Resolution Adopting the Distribution Management Committee (DMC) Reliability Indices Standards for On-Grid Electric Cooperatives).

2.6 REVIEWING SYSTEM LOSS CAP

In addition to higher deployment of renewable energy power plants, improvement in energy efficiency also facilitates energy transition. The Electric Power Industry Reform Act of 2001 requires ERC to determine the distribution system loss cap that could be recovered by distribution utilities through tariffs. ERC issued Resolution 10, series of 2018 (A Resolution Clarifying the System Loss Calculation and Providing the Effectivity of the Rules for Setting the Distribution System Loss Cap) which set system loss cap reduction targets for distribution utilities during the period 2018 to 2022. These targets were derived based on distribution utility data from 2012-2016.

The main objective of this task is to develop a new system loss caps based on the criteria provided in the Electric Power Industry Reform Act (EPIRA), and methodology developed in Resolution 10, series 2018 for the period 2024-2027. The project accomplished the following:

- Analysis of distribution utility data during the period 2018-2022 which was used as basis for re-clustering electric cooperative distribution utilities and for clustering private distribution utilities and development of a proposal for distribution system loss cap targets for the period 2024-2027.
- Review and analysis of international best practices and analysis on their applicability in the Philippines.
- Strengthened ERC capacity through transfer of knowledge and spreadsheets used in the above analyses.

2.7 STRATEGIC REVIEW OF ERC REGULATORY FRAMEWORK

The focus of this task is to put ERC regulations into the energy transition perspective, to situate the project interventions in the context of the country's energy transition, and to map out areas in where potential support could still be needed.

The main objective of this task is to carry out a strategic overview of ERC's regulatory framework in view of the Philippine NDC, identifying its strengths and weaknesses, challenges, and opportunities in addressing barriers, and in amplifying existing incentives to accelerate the transition to low carbon energy systems. The project accomplishments include the following:

- Categorisation of ERC's regulatory frameworks into various dimensions of energy transition and characterise project activities into the context of energy transition.
- Identification of key challenges facing ERC and assessment of ERC's strengths, weaknesses, opportunities, and threats in delivering rules and regulations supporting energy transition

- Identification of state policies that ERC rules and regulations are yet to be issued in which subject experts may be supported by ETP.

3. CONCLUSION AND RECOMMENDATIONS

This study has focused on technical regulations (which had been mostly supported by GMC and DMC) related to the following frameworks supporting the country's energy transition: i) frameworks facilitating grid integration of renewable power generators, and ii) frameworks promoting network efficiency and enhancing service reliability and quality. In overall, the project supported and strengthened ERC's capacity in updating key energy transition regulations.

- Supported in updating the Philippine Grid Code and Distribution Code and strengthened ERC's capacity on technical aspects related to grid integration of renewable energies.
- Strengthened ERC's capacity on ancillary service regulation.
- Assisted ERC in updating and integrating smart grid rules in distribution utility planning manuals.
- Supported ERC is updating the Philippine Small Grid Guidelines and strengthened its capacity on technical aspects integrating renewable energy in isolated grids.
- Aided ERC in updating guidelines for monitoring power quality standards for distribution utilities and in updating regulations related to reliability indices standards for on-grid electric cooperatives.
- Strengthened ERC's capacity related to methodological approaches in clustering distribution utilities and in setting distribution utility system loss cap targets and assisted in updating the resolution on system loss caps.
- Assessed and categorised ERC regulatory frameworks in light of the country's energy transition, identified key challenges facing ERC, and assessed ERC's strengths, weaknesses, opportunities, and threats in delivering rules and regulations. In addition, identified energy transition frameworks where ERC rules and regulations are yet to be issued which could be potentially supported by ETP and other developmental cooperations.

ERC, with its current circumstances, employs a combination of internal and external support in undertaking technical studies required in preparing regulatory rules and regulations. The rules and regulations updated by this project were initially prepared by a combination of internal and external experts as mentioned in the preamble of those regulatory issuances. The Grid Management Committee (GMC) and Distribution Management Committee (DMC) were the internal technical support body established under ERC resolutions adopting the Philippine Grid Code and Philippine Distribution Code. External and subject matter experts were engaged to support GMC and DMC, and ERC in general, through combination of internal funding and donor-funding. This approach provided ERC a long-term sustainable support in updating outdated and in preparing new rules and regulations.

The dissolution of the GMC and DMC in 2018 has partly contributed to the slowing down in updating old and preparing new technical rules and regulations. Energy Transition Partnership's (ETP's) technical assistance came in an opportune time as ERC was in a situation without its internal technical support. ETP filled in some of the needed expertise through this project.

It must be mentioned that in another project supported by ETP (Philippine Grid Diagnostic and Smart Grid Road Map), the project recommended ERC to establish the Technical Working Group of the Philippine Electricity Market Corporation to fill in the gap. As a result, ERC issued Resolution no 4, series of 2023 which is a resolution constituting an interim Grid Management Committee for a specific purpose and perform limited functions under the Philippine Grid Code.

This study recommends that ERC to fully re-establish the GMC and DMC and fully restore their functions as stipulated in the Philippine Grid Code and Philippine Distribution Code as these committees are important in achieving ERC's role as facilitator to energy transition. The study also recommends ETP to continue supporting ERC through engagements of subject matter specialists complementing ERC's internal technical body. Task 7 of this project (Strategic Review of ERC Regulations) identified regulatory frameworks supporting energy transition where ERC rules and regulations are yet to be issued. Overall, ETP's additional support forms part of a balanced and sustainable approach for ERC in strengthening its capacity and delivering its required regulatory actions and issuances, and in meeting its obligations related to energy transition.

T: +44 (0) 1235 75 3000

E: enquiry@ricardo.com

W: ee.ricardo.com