



Republic of the Philippines
DEPARTMENT OF ENERGY
(Kagawaran ng Enerhiya)

DEPARTMENT CIRCULAR NO. _____

**PRESCRIBING THE POLICY FOR ENERGY STORAGE SYSTEM IN THE
ELECTRIC POWER INDUSTRY**

WHEREAS, Republic Act No. 7638 or the “*Department of Energy Act of 1992*” established, among others, the power and function of the Department of Energy (DOE) to establish and administer programs for the exploration, transportation, marketing, distribution, utilization, conservation, stockpiling, and storage of energy resources of all forms, whether conventional or non-conventional;

WHEREAS, Section 37 of the Republic Act No. 9136, otherwise known as “*Electric Power Industry Reform Act of 2001*” or EPIRA, provides that the DOE shall undertake, among others, the formulation of policies for the planning and implementation of a comprehensive program for the efficient supply and economical use of energy consistent with the approved national economic plan and with the policies on environmental protection and conservation and maintenance of ecological balance, and provide a mechanism for the integration, rationalization, and coordination of the various energy programs of the Government and ensure the reliability, quality and security of supply of electric power;

WHEREAS, on 01 August 2019, the DOE issued Department Circular (DC) No. DC2019-08-0012 which aims to introduce Energy Storage System (ESS) technologies to serve a variety of functions in the generation, transmission, and distribution of electric energy;

WHEREAS, Republic Act No. 9513 also known as “*Renewable Energy Act of 2008*” promotes the development, utilization, commercialization of Renewable Energy (RE) resources;

WHEREAS, the Philippines aspires to increase the contribution of RE by at least 35.0 percent in the total generation mix by 2030 and looking further at achieving at least 50% share by 2040.

WHEREAS, with increasing influx of RE Plants particularly Variable RE, necessitates enhancement of the existing ESS policy and regulation to accommodate the development of ESS in support to the renewable energy integration and Grid stability;

WHEREAS, on 22 November 2022, the DOE, as part of its policy review, conducted a Focus Group Discussion and solicited issues encountered and recommendations to enhance the operationalization of DC2019-08-0012.

NOW THEREFORE, for and in consideration of the foregoing premises, the DOE hereby issues, adopts and promulgates this Circular governing ESS:

SECTION 1. General Policies and Principles. The DOE recognizes the applications and the benefits of ESS as an emerging technology in the improvement of the electric power system in accordance with the objective of ensuring the quality, reliability, security, sustainability, and affordability of the supply of electric power, and accelerating the exploration, development, and utilization of renewable energy resources. Hence, to maximize these benefits, ESS shall operate within the framework of:

- 1.1. Power Generation Business whose facilities supply electricity or provide reliability services to the Grid or the Distribution System;
- 1.2. Compliance with the Central Dispatch, as applicable, by the System Operator to Grid-connected and embedded ESS with material impact to the Grid in the interest of achieving economic operation and maintenance of quality, stability, reliability and security of the transmission system;
- 1.3. Compliance with the EPIRA and its IRR, Philippine Grid Code (PGC), Philippine Distribution Code (PDC), Wholesale Electricity Spot Market (WESM) Rules and its Market Manuals, Philippine Electrical Code and other pertinent issuances by the DOE, Energy Regulatory Commission (ERC) and other relevant government instrumentalities having authority over the Grid or the Distribution System's reliability and supply security; and

SECTION 2. Definition of Terms. The terms as used in this Circular shall have the following meaning:

- 2.1. **“Ancillary Services” or “AS”** refers to those services that are necessary to support the transmission of capacity and energy from resources to load while maintaining reliable operation of the transmission system in accordance with good quality practice and the Grid Code to be adopted in accordance with the EPIRA;
- 2.2. **“Conventional Plant”** refers to any Generating Unit/Plant which is not a Renewable Energy facility;
- 2.3. **“Decentralized Power Generation”** refers to small-scale power generation facilities which operates locally and are connected to the Distribution System of the Microgrid end-user that could be aggregated to provide electric power necessary to meet demand, including, but not limited to, mini-wind turbines connected to a microgrid, energy storage, and solar photovoltaic rooftop of an end-user;
- 2.4. **“Distributed Energy Resources” or “DER”** refer to power sources connected to the Distribution System or electrical system of the End-Users, that could be aggregated to meet a demand;

- 2.5. **“Distribution System”** refer to the system of wires and associated facilities belonging to a franchised Distribution Utility, extending between the delivery points on the transmission, sub-transmission system, or generating plant connection and the point of connection to the premises of the End-User;
- 2.6. **“Distribution Utility”** refers to refers to any electric cooperative, private corporation, government-owned utility, or existing local government unit, which has an exclusive franchise to operate a Distribution System in accordance with its franchise and EPIRA;
- 2.7. **“Electric Power Industry Participant”** refers to any person or entity engaged in the generation, transmission, distribution or supply of electricity;
- 2.8. **“Embedded Generator” or “EG”** refers to generating units that are indirectly connected to the Grid through the Distribution System that supplies power to its host DU or the Grid;
- 2.9. **“End-User”** refers to any person or entity requiring the supply and delivery of electricity for its own use;
- 2.10. **“Energy Regulatory Commission”** refers to the agency created by section 38 the EPIRA;
- 2.11. **“Energy Storage System” or “ESS”** refers to a facility capable of absorbing energy directly from the Grid or Distribution System, or from an RE Plant or from a Conventional Plant connected to the Grid or Distribution System and storing it for a time period, and injecting stored energy when prompted, needed to ensure reliability and balanced power system:

ESS technologies shall include, but not limited to:

- 2.11.1. **“Battery Energy Storage System” or “BESS”** – capable of storing electric energy electrochemically from which it is able to charge or discharge electric energy;
- 2.11.2. **“Compressed Air Energy Storage” or “CAES”** – uses electric energy to inject high-pressure air containers. When energy is required, the pressurized air is heated and expanded in an expansion turbine driving a generator for power production;
- 2.11.3. **“Flywheel Energy Storage or “FES”** – uses electric energy to accelerate a rotating mass, called a “rotor”, to store kinetic energy. Energy is extracted from the system by drawing down the kinetic energy from the rotor; and

- 2.11.4. **“Pumped-Storage Hydropower or “PSH”** – uses electric energy to pump water from a lower elevation reservoir to a higher elevation reservoir. When required, the water flows back from the upper to the lower reservoir, powering a turbine with a generator to produce electric energy.
- 2.12. **“Electric Power Industry Reform Act of 2001” or “EPIRA”** refers to Republic Act No. 9136;
- 2.13. **“Generating Plant and ESS”** refers to a combination of Conventional Plant/s and/or RE Plant/s, and an ESS, where the ESS is charged either from the Generation Plant/s or from the Grid or Distribution System;
- 2.14. **“Grid”** refers to the high voltage backbone system of interconnected transmission lines, substations and related facilities, located in each of Luzon, Visayas and Mindanao, or as may be determined by the ERC in accordance with Section 45 of the EPIRA;
- 2.15. **“Integrated Non-RE Plant and ESS”** refers to a combination of a Conventional Plant/s and an ESS, where the ESS will not charge from the Grid or Distribution System and that its P_{max} will be limited to the plant capacity;
- 2.16. **“Integrated RE Plant and ESS”** refers to a combination of RE Plant/s and an ESS, where the ESS is solely charged by the RE Plant/s;
- 2.17. **“Market Operator” or “MO”** refers to the entity responsible for the operation of the WESM in accordance with the WESM Rules;
- 2.18. **“Microgrid System”** refers to a group of interconnected loads and a generation facility or Decentralized Power Generation with clearly defined electrical boundaries that acts as an integrated power generation and Distribution System, whether or not connected to a distribution or transmission system;
- 2.19. **“National Electrification Administration”** refers to government agency created under Presidential Decree No. 269, as amended, with additional mandate set forth in the EPIRA;
- 2.20. **“Power Quality”** refers to the quality of the voltage, including its frequency and resulting current, that are measured in the Grid, Distribution System, or any user system during normal conditions;
- 2.21. **“Microgrid Service Provider” or “MGSP”**, refers to a natural or juridical person whose business includes the installation, operation, and

maintenance of microgrid systems in unserved or underserved areas nationwide;

- 2.22. **“Renewable Energy Act of 2008” or “RE Act”**, refers to Republic Act No. 9513;
- 2.23. **“Small Grid”** refers to the backbone system of interconnected High Voltage lines or Medium Voltage lines, substations and other related facilities not connected to the National Grid in Luzon, Visayas and Mindanao;
- 2.24. **“Small Grid Owner” or “SGO”** refers to the party that owns the backbone Transmission or Sub-transmission or Distribution System, and is responsible for planning, operations and maintaining adequate capacity;
- 2.25. **“System Operator or “SO”** refers to the entity responsible for generation dispatch, or the implementation of the generation dispatch schedule of the MO, the procurement of AS, and operation to ensure safety, Power Quality, stability, reliability and security of the Grid;
- 2.26. **“Small Grid System Operator” or “SGSO”** refers to the party responsible for generation dispatch and real-time control of the power system in off-grid areas through the management of operating reserves, reactive power support, black start and other operating requirements to ensure safety, Power Quality, stability, reliability and security of the Small Grid;
- 2.27. **“Stand-alone Energy Storage System”** refers to an ESS that is connected to and stores energy sourced from the Transmission or Distribution System;
- 2.28. **“Transmission Grid”** refers to the high voltage backbone system of interconnected transmission lines, substations and related facilities;
- 2.29. **“Transmission Network Provider” or “TNP”** refers to the party that is responsible for maintaining adequate Grid capacity in accordance with the provisions of the Philippine Grid Code.

SECTION 3. Scope. This Circular shall apply to the following Electric Power Industry Participants:

- 3.1 Generation Companies (GenCos);
- 3.2 Distribution Utilities (DUs);
- 3.3 Directly Connected Customers (DCCs) owning and operating ESS;
- 3.4 End-Users owning and operating ESS;

- 3.5 Microgrid Service Provider (MGSP);
- 3.6 Transmission Network Provider (TNP);
- 3.7 System Operator (SO);
- 3.8 Market Operator (MO); and
- 3.9 Other entities as applicable.

SECTION 4. Purposes of ESS. ESS proponents shall apply and register their ESS for one or more of the following purposes:

4.1. Provision of Ancillary Services

ESS may be used to support the transmission capacity and energy that are essential in maintaining power quality and the reliability of the Grid.

4.2. Provision of Energy through Bilateral Supply Contracts or Trading in the WESM

Generation Companies may utilize ESS for selling power through contract or trading energy in the WESM.

4.3. Manage the Variability of Renewable Energy

Generation Companies may integrate ESS in its VRE facilities for the purpose of mitigating its variable generation output and support the Grid in maintaining power quality and reliability. The installation of ESS to a Feed-in-Tariff (FIT)-eligible VRE should not in any way increase the VRE plant's capacity and generation entitled to FIT. The ESS shall only be charged from the VRE facilities' output.

4.4. Auxiliary Load Management for Generation Companies

ESS when integrated in the power system of a Generation Company can be used to augment supply needed during hours of high demand enabling higher energy dispatch.

4.5. Transmission and Distribution Facility Upgrades Deferral

ESS when connected to appropriate nodes may defer the need for additional transmission and distribution facility upgrades by supplying the peak demand of Grid/end-users through ESS.

4.6. Transmission and Distribution Utility Power Quality Management

Involves the process of using ESS to improve the power quality of a Transmission and Distribution System.

4.7. **End-User Demand Management**

ESS can be used to manage end-user energy requirements.

4.8. **Distribution Utility Demand Management**

Involves the process of storing energy available during off-peak periods and discharging the stored energy in the power system during peak periods thereby reducing consumption from the Grid during peak hours.

SECTION 5. Duties and Responsibilities.

5.1. **Generation Companies.** Generation Companies may own a stand-alone ESS, an Integrated RE Plant and ESS, an Integrated Non-RE and ESS, or a Generation Plant and ESS, and shall have the following responsibilities:

- 5.1.1. For Integrated RE plant and ESS and Integrated Non-RE and ESS, a single bi-directional meter and monitoring equipment is only required to measure export energy of such facility that are injecting energy to the Grid;
- 5.1.2. For Generating Plant and ESS, a bi-directional metering and monitoring equipment for each facility shall be installed to measure the import and export energy of such facility that are absorbing energy from and injecting energy to the Grid;
- 5.1.3. Shall submit to the DOE the single line diagram of the proposed facility which shall include nameplate capacities of both RE or generating plant and the ESS and the location of metering facilities, for the DOE's determination of the configuration of the system; and
- 5.1.4. Submit Monthly Operation Report (MOR) including the operation of all ESS mentioned in this Circular, and other appropriate reportorial requirements, every last day of the following month.
- 5.1.5. All Generating Plants with ESS, except for the ESS component of the Integrated RE Plant and ESS or Integrated Non-RE Plant and ESS, shall register in the WESM including embedded generators intending to export energy to the Grid.

5.2. **Distribution Utilities** shall have the following responsibilities:

- 5.2.1. Develop or enhance appropriate internal business procedures for the connection of ESS to its Distribution System, consistent with the PDC, test and commissioning policies, conduct of distribution impact studies and other applicable regulations and guidelines;

- 5.2.2. Ensure that the connection and dispatch of ESS within its distribution network is compliant with the standards set forth in the PGC, PDC and other applicable guidelines;
 - 5.2.3. Notify the TNP upon receipt of the connection application of an ESS with capacities of 10MW and above for Luzon, or 5MW and above for Visayas and Mindanao;
 - 5.2.4. Include in its Monthly Operation Report (MOR), and other appropriate reportorial requirements, the operation of DU-owned and operated ESS; and
 - 5.2.5. Incorporate the characteristics of an ESS, as it absorbs and injects energy, in the preparation of the Distribution Development Plan.
 - 5.2.6. Develop the testing standard and procedure for embedded ESS and shall be submitted to the ERC for approval, copy furnished the DOE;
 - 5.2.7. Complete testing and commissioning within sixty (60) calendar days upon receipt of complete and compliant application.
- 5.3. **End-users.** End-users may own and operate Generating plant and ESS for the purpose of managing their energy demands, subject to permitting requirements such as electrical permit from the local government unit, and operating requirements of the DU, provided that the capacity is within the applicable threshold in the case of Distributed Energy Resource and net metering, and shall have the following responsibilities:
- 5.3.1. Provide the following information to the DU as part of the data/documentary requirements:
 - 5.3.1.1 Type of ESS;
 - 5.3.1.2 Capacity and rate of charge and discharge;
 - 5.3.1.3 Proposed application/purpose/operation; and
 - 5.3.1.4 Other information as may be required by the DU.
 - 5.3.2. In compliance with the PDC and Distribution Service Open Access Rules, apply with the DU for the conduct of distribution impact study (and distribution asset study, if necessary);
- 5.4. **Microgrid Service Provider.** A Microgrid Service Provider may own and operate ESS in conjunction with Conventional and/or RE-based generating facilities to provide continuous electric service to households in the form of

either microgrid or DER, as may be applicable, in consonance with the total electrification program of the government.

5.5. **Transmission Network Provider and Small Grid Owner** shall have the following responsibilities:

5.5.1 For TNP to incorporate, the recommended sizing and siting of ESS, in the Transmission Development Plan, taking into consideration existing transmission capacity and planned upgrading; and

5.5.2 For both TNP and SGO to consider ESS as an alternative solution to address the transmission congestion and transmission facilities upgrade deferment.

5.6. **System Operator and Small Grid System Operator.** The SO and Small Grid SO shall have the following responsibilities, as applicable:

5.6.1 May own and operate, by itself or thru a subsidiary a BESS or FES for Regulating Reserve requirements, provided that the SO or SGSO will only supply once determined that there are not enough available AS capacity through Competitive Selection Process and the Reserve Market.

5.6.2 Prioritize the dispatch of the available AS capacity procured through CSP and Reserve Market prior the dispatch of owned BESS or FES.

5.6.3 Develop, in coordination with stakeholders, the following:

5.6.3.1 Testing standard and procedure for ESS;

5.6.3.2 Accreditation process of ESS as AS Provider; and

5.6.3.3 Appropriate and applicable guidelines to be used by the SO in the determination of Third Party Service Provider that can also perform the testing standard and procedure for ESS, and accreditation process of ESS as AS Provider.

The aforementioned shall be submitted to the ERC for approval, copy furnished the DOE within ninety calendar (90) days upon the effectivity of this Circular;

5.6.4 Complete testing and commissioning within one hundred twenty (120) calendar days upon receipt of complete and compliant application.

- 5.6.5 Facilitate and approve the entry and participation of Third Party/Parties in the accreditation and testing standard and procedure for ESS consistent with the ERC-Approved procedure and process.
- 5.6.6 Optimize the addition of ESS for AS application and ensure proper allocation for each type of AS consistent with the Grid requirement;
- 5.6.7 Include in its Daily Operation Report the operation of ESS as an AS Provider; and

5.7 Market Operator shall have the following responsibilities:

- 5.7.1 Submit to the Rules Change Committee, within one (1) month upon effectivity of this Circular, proposed changes to the WESM Rules and Market Manuals in accordance with the policy provided herein;
- 5.7.2 Ensure that the technical parameters identified in the COC and registered in the WESM shall be as follows:

ESS	P_{Max} and Ramp Rate	Connections
Stand Alone ESS	ESS Capacity and Ramp Rate	Connected either to the Grid or Distribution System
Generating Plant and ESS	Generating Plant Capacity and ESS Capacity, and Ramp Rate	ESS is connected to the Generating Plant/s and can be charged from the Generating Plant/s or to the Grid or Distribution System
Integrated RE and ESS	RE Plant's Capacity and Ramp Rate	ESS is only connected to the RE Plants/s
Integrated Non-RE and ESS	Conventional Plant's Capacity and Ramp Rate	ESS is only connected to the Conventional Plants/s

- 5.7.3 Submit monthly reports to the DOE with respect to the status of registration of ESS in the WESM and their impact to the market operations; and
- 5.7.4 Recommend policies, as may be necessary, to address issues relating to market operations brought by ESS adoption and operations.

SECTION 6. Permitting and Licensing Requirements. The following shall govern the licensing requirements of ESS:

- 6.1 Pursuant to this Circular, the following ESS configuration shall secure a Certificate of Compliance for ESS (COC-ESS) from the ERC pursuant to existing guidelines on licensing of generation facilities:
 - 6.1.1 Stand Alone ESS shall secure a COC-ESS from the ERC;
 - 6.1.2 All Generation Companies intending to operate an Integrated RE Plant and ESS or Integrated Non-RE Plant and ESS shall apply only for a single COC; and
 - 6.1.3 For a Generation Plant/s and ESS, the proponent shall secure a separate COC and COC-ESS for each facilities.
- 6.2 All ESS shall comply with the rules and regulations on Safety, Health, Environmental Standards, Proper Disposal, and Recycling enforces by appropriate government agencies; and
- 6.3 All ESS proponents shall secure an Environmental Compliance Certificate or any other equivalent document from the Department of Environmental and Natural Resources (DENR) and other requirements by relevant government agencies pursuant to their guidelines.

SECTION 7. Connection and Operational Requirements. The following shall govern the connection and operational requirements of ESS:

- 7.1 All ESS connected to the transmission system shall comply with the connection and operational requirements for Energy Storage System (ESS) or applicable connection and operational requirements for Generation Companies pursuant to the PGC, WESM Rules and relevant Market Manuals, and other relevant policies and regulations promulgated by the ERC and DOE;
- 7.2 All ESS connected to the Distribution System shall comply with the connection and operational requirements, for Energy Storage System (ESS) or applicable connection and operational requirements for Embedded Generation Companies, of the PDC and other relevant policies and regulations promulgated by the ERC and DOE;
- 7.3 All ESS connected to the Distribution System and mandated to register in the WESM shall comply with the connection and operational requirements, Energy Storage System (ESS) or applicable connection and operational requirements for Embedded Generation Companies pursuant to the PDC, PGC, WESM Rules and relevant Market Manuals and other relevant policies and regulations promulgated by the ERC and DOE;

- 7.4 All ESS connected or intending to connect to Microgrid Systems shall comply with connection and operational requirements as provided by applicable guidelines of the ERC; and
- 7.5 All ESS connected or intending to connect to Off-Grid Areas shall comply with DOE Department Circular No.2019-01-0001 or the DC prescribing the omnibus guidelines on enhancing off-grid power development and operation.

SECTION 8. Market Registration and Participation. The following shall govern the registration and participation of ESS in the WESM:

- 8.1. The following ESS shall be registered separately in the WESM and, thereafter, be subjected to central dispatch by the SO:
 - 8.1.1. ESS that are connected to the Transmission System and are absorbing and injecting energy into it;
 - 8.1.2. ESS connected to the Distribution System and are absorbing and injecting energy into it, with a capacity equal to or above the following regional thresholds:
 - 8.1.2.1. 10 MW for Luzon Grid;
 - 8.1.2.2. 5 MW for Visayas Grid; and
 - 8.1.2.3. 5 MW for Mindanao Grid

ESS connected to the Distribution System, which has a capacity less than the above threshold may register in the WESM on a voluntary basis;
- 8.2. The DOE, in coordination with the MO and SO, shall regularly review the criteria for mandatory registration, and recommend revision as may be necessary.

SECTION 9. Incentives for Integrated RE Plant and ESS. Energy stored and dispatched from Integrated RE Plant and ESS shall be considered renewable energy and shall be eligible of the following incentives, including but not limited to:

- 9.1 The RE developer may avail the incentives under the RE Act for its Integrated RE Plant and ESS such as income tax holiday, duty-free importation, zero-rated VAT, and other applicable incentives; and
- 9.2 The Integrated RE Plant and ESS, as applicable, shall have preferential dispatch, but it can opt to be registered as scheduled generating unit.

SECTION 10. Regulatory Support. The ERC is hereby directed to assist DOE in the implementation of this Circular, specifically:

- 10.1 Issue appropriate and applicable cost recovery mechanism and pricing structure in accordance with this Circular;
- 10.2 Review and approve the appropriate and applicable testing standards and procedures, accreditation process of AS Provider, and determination guidelines for Third Party Service Provider, submitted by the SO and DUs;
- 10.3 Ensure the inclusion of ESS-related rules, procedures, requirements, and standards in the, but not limited to, Open Access Transmission Service Rules, Distribution Service Open Access Rules, AS Procurement Plan, PGC, PDC, and Philippine Small Grid Guidelines; and
- 10.4 Issue appropriate and applicable procedure for the issuance of COC-ESS.

SECTION 11. Third Party Service Provider

Third Party Service Provider will be allowed to conduct accreditation and testing and commissioning of ESS for purposes identified in this Circular. The selection of Third Party Service Provider will be subject to the guidelines to be approved by the ERC

SECTION 12. Standards and Safety Codes. The DOE, recognizing the necessity to ensure successful and safe deployment of ESS in coordination with the Professional Regulatory Commission, DENR, Department of Labor and Employment, the Department of Trade and Industry-Bureau of Product Standards, other relevant government agencies and concerned stakeholders, shall consolidate and/or develop all occupational safety and health standards for ESS technologies and ESS installation, without prejudice to compliance with other relevant rules and regulations of the other agencies.

SECTION 12. Proper Disposal and Recycling of ESS. ESS proponents are mandated to recycle and properly dispose ESS facilities and components, specially those that use chemical substances, in compliance with the DENR Administrative Order no. 2013-22 or other related issuances pursuant to the R.A. No. 6969, otherwise known as the “Toxic Substances and Hazardous and Nuclear Waste Control Act of 1990”

SECTION 13. Repealing Clause. All rules and regulations, or any portion thereof, that are inconsistent with this Circular are hereby repealed or modified accordingly. Correspondingly, DC2019-08-0012 is hereby repealed.

SECTION 14. Separability Clause. If any section or provision of this Circular is declared unconstitutional or invalid, the other parts or provisions hereof which are not affected thereby shall continue to be in full force and effect.

SECTION 15. Effectivity. This Circular shall take effect fifteen (15) days after its publication in two (2) newspapers of general circulation, and copies of this Circular

shall be filed with the University of the Philippines Law Center-Office of the National Administrative Register.

Signed this _____ day of _____ 2023 at DOE, Energy Center, Rizal Drive, Bonifacio Global City, Taguig City, Metro Manila.

RAPHAEL P. M. LOTILLA
Secretary