



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

Department Circular No. DC 2021-03-0009

**ADOPTING A GENERAL FRAMEWORK GOVERNING THE
OPERATIONALIZATION OF THE RESERVE MARKET IN THE WHOLESALE
ELECTRICITY SPOT MARKET AND PROVIDING FURTHER POLICIES TO
SUPPLEMENT DC2019-12-0018**

WHEREAS, Section 2 of Republic Act No. 9136, otherwise known as the Electric Power Industry Reform Act of 2001 (EPIRA), declared the Policy of the State among others to: (i) ensure the quality, reliability, security and affordability of the supply of electric power; (ii) protect the public interest as it is affected by the rates and services of electric utilities and other providers of electric power; and (iii) establish a strong and purely independent regulatory body and system to ensure consumer protection and enhance the competitive operation of the electricity market.

WHEREAS, Section 37 of the EPIRA further mandates the Department of Energy (DOE) to supervise the restructuring of the electricity industry by formulating 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 such rules and regulations as may be necessary to implement the objectives of EPIRA;

WHEREAS, Ancillary Services (AS), as defined in the EPIRA, are services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the transmission system in accordance with good utility practice and the Grid Code;

WHEREAS, Department Circular Nos. 2010-06-0007 and 2013-12-0027 provided for the initial guidelines on the preparations for the trading of AS in the Wholesale Electricity Spot Market (WESM);

WHEREAS, Department Circular Nos. 2014-03-0009 and 2014-12-0022 provided for the promulgation of the WESM Manual on the Protocol for Central Scheduling and Dispatch of Energy and Contracted Reserves in order to monitor all available generation capacity in both energy and reserves and to prepare the participants for the eventual commercial operation of the Reserve Market;

WHEREAS, Department Circular No. DC2015-10-0015 provided policies and guiding principles for further enhancements of the WESM Design and Operations, including the co-optimization of energy and reserves;

WHEREAS, Department Circular No. DC2015-11-0018 declared the commercial operation of the central scheduling and dispatch of energy and contracted reserves in the WESM and provided further amendments to its protocol in preparation for the eventual operation of the WESM reserve market;

WHEREAS, Department Circular No. 2019-02-0003 encouraged the provision of AS from Embedded Generators, subject to criteria provided in relevant rules and regulations;

WHEREAS, Department Circular No. 2019-12-0018 defined the commercial operations of the co-optimized energy and reserve market subject to the compliance of readiness criteria established by the DOE under Section 6 thereof;

WHEREAS, Department Circular No. 2019-12-0018 further created the Ancillary Services- Technical Working Group (AS-TWG) to render technical assistance to DOE in developing further policies, among other responsibilities, which may include the co-optimized market design;

WHEREAS, the AS-TWG, through AS-TWG Resolution No. 2020-01, provided "Recommendations to the Department of Energy and Energy Regulatory Commission (ERC) on Further Implementation of DOE Department Circular No. DC2019-12-0018";

WHEREAS, in light of the recommendations by the AS-TWG, the DOE drafted a Circular providing a general framework on the implementation of the WESM Reserve Market and posted the same at the DOE website on 18 January 2021 to solicit comments and recommendations from concerned stakeholders;

WHEREAS, after the conduct of Virtual Public Consultations on 26 January 2021 for Luzon stakeholders and on 29 January 2021 for Visayas and Mindanao stakeholders, the DOE reviewed and finalized the circular in consideration of the comments and recommendations received from stakeholders;

NOW, THEREFORE, from the foregoing premises and pursuant to its authority under the EPIRA and the WESM Rules, the DOE hereby adopts, issues, and promulgates the following policies on the implementation of the WESM Reserve Market:

Section 1. Guiding Principles. The implementation of the WESM Reserve Market shall adhere to the following principles:

- 1.1 The continuing development and operationalization of the Reserve Market shall take into account key policies stipulated in the DOE Roadmap, among others, Renewable Energy Market, Electricity Derivatives Market, Demand-Side Bidding, and exploratory studies on Capacity Market, as applicable;
- 1.2 The WESM shall provide the optimal solution for all available capacities when scheduling reserve and energy capacities through co-optimization while adhering to grid reliability requirements;

- 1.3 The System Operator (SO) and the Market Operator (MO) shall allow for non-discriminatory participation of all capable Ancillary Service Providers (ASPs), including demand-side resources, in various reserve categories, provided that all participants shall comply with the certification of AS capability issued by the SO or any qualified third-party AS testing entity duly accredited by the ERC;
- 1.4 A single buyer system shall be implemented for the procurement of AS requirements whether sourced through the Reserve Market or AS Procurement Agreements (ASPAs). Pending the DOE's promulgation of Competitive Selection Process (CSP) for ASPAs, the SO may continue to enter into ASPAs through its existing procedure.
- 1.5 Recovery of reserves costs among grid users shall be implemented in accordance with the guidelines on AS cost-recovery to be promulgated by the ERC;
- 1.6 Sufficiency of reserves in the Grid shall be ensured through procurement of reserves through ASPAs and the WESM; and
- 1.7 For purposes of simplification, all references to WESM in this Circular shall mean the co-optimized energy and reserve market.

Section 2. Scope and Application. This Circular shall apply to the following:

- 2.1 WESM Governance Arm;
- 2.2 Market Operator;
- 2.3 System Operator;
- 2.4 Transmission Network Provider;
- 2.5 All Metering Services Providers;
- 2.6 All Generating Facilities, including Embedded Generators (EGs);
- 2.7 All Distribution Utilities;
- 2.8 All WESM Members as may be affected by the implementation of this Circular;
- 2.9 All Electricity End-Users; and
- 2.10 All Ancillary Service Providers, a collective term for Generating Facilities and Load Facilities capable of providing AS.

Section 3. Reserve Market Design. The development of the WESM Reserve Market shall conform to the following:

- 3.1 All Generation Companies registered in the WESM shall offer their maximum available capacities at all times in accordance with the requirements of the co-optimized energy and reserve market as prescribed under the WESM Rules and its Market Manuals and subject to their reserve capabilities as certified by the SO or any other entity duly designated to conduct testing and certification of AS capability of generating and load facilities, as applicable.

For this purpose, co-optimized energy and reserves shall mean that the schedule and pricing solutions produced by the Market Dispatch Optimization Model (MDOM) simultaneously fulfills the energy and reserve requirements of the power system at all times while taking into account the following constraints:

- 3.1.1 As may be warranted by its reserve capability tests certification and registration in the WESM, all ASPs shall submit offers for all types of reserve categories to which they are registered in, provided that:
- 3.1.1.1 The scheduled capacity per reserve category shall not exceed its corresponding certified capacity.
 - 3.1.1.2 The total scheduled capacity for energy and reserve shall not exceed its maximum available capacity registered in the market; and
 - 3.1.1.3 A generating unit may be scheduled for more than one type of reserve at the same dispatch interval provided that the technical requirements that make it able to respond to both services simultaneously are addressed.
- 3.1.2 Subject to the approval of the DOE, the SO may recommend an operational cap for the allocation of the reserve requirement to each generating unit or resource providing any type of reserve. Provided, that the recommendation shall be made through a study in collaboration with the MO with the end view of achieving a competitive level of the Reserve Market such that the dispatch schedule produced by the MDOM shall not result in concentration of AS for each dispatch interval to a few or single ASPs to ensure reliability.
- 3.1.3 The sharing of AS shall only be allowed within the same region or subregion which has synchronous operations, provided, that reserve subregions are defined and identified within the grid. For avoidance of doubt, synchronous operations shall refer to the operations of connected Generating Units and/or interconnected systems at the same Frequency and where the phase angle displacements between their voltages vary about a stable operating point.
- 3.1.4 The hierarchy for soft constraint violation in cases of scarcity conditions shall conform to the WESM Rules and the Market Manual on Constraint Violation Coefficients and Pricing Re-Run, which may be amended, as necessary.
- 3.2 Dispatch schedule for co-optimized energy and reserve shall be prepared by the MO for each five-minute dispatch interval in accordance with the WESM timetable and shall be transmitted to the SO and relevant Trading Participants for dispatch implementation.
- 3.3 All certified and registered ASPs shall submit generation offers up to their maximum available capacity, while reserve offers should be up to their registered maximum reserve capability for all reserve categories whether or not the capacities are covered by ASPAs.

- 3.4 All contracted ASPs shall use reasonable endeavors to have their contracted capacities scheduled in the Reserve Market and dispatched accordingly by the SO.
- 3.5 The SO shall be the single buyer for AS requirements and shall be accountable in ensuring adequate procurement of AS through combination of ASPAs and Reserve Market procurement.

Section 4. Reserve Categories and Required Levels for the Initial Implementation of the Reserve Market. The following shall govern the categories and required level of reserves to be traded during the initial phase of implementation:

- 4.1 Pending the implementation by the ERC of the PGC 2016 provisions on AS, the following reserve categories shall be traded in the WESM Reserve Market:
 - 4.1.1 Contingency Reserves - synchronized generation capacity from Qualified Generating Units and Qualified Interruptible Loads allocated to cover the loss or failure of a synchronized generating unit or a transmission element or the power import from a circuit interconnection.
 - 4.1.2 Regulating Reserves – readily available and dispatchable generating capacity that is allocated exclusively to correct deviations from the acceptable nominal frequency caused by unpredicted variations in demand or generation output.
 - 4.1.3 Dispatchable Reserves – Generating capacity that are readily available for dispatch in order to replenish the Contingency Reserves whenever a generating unit trips or a loss of a single transmission interconnection occurs.
- 4.2 The technical specifications of the reserve categories shall be in accordance with the applicable guidelines or rules adopted or to be promulgated by the ERC.
- 4.3 For the avoidance of doubt, Reactive Power Support AS and Black Start AS are not included in the tradeable AS in the Reserve Market.
- 4.4 The required level for each reserve category shall be in accordance with the applicable guidelines or rules adopted or to be promulgated by the ERC. Provided, however, that the initial reserve levels per dispatch interval per reserve region shall be based on the following:
 - 4.4.1 Contingency Reserves – the largest online generating unit for each dispatch interval;
 - 4.4.2 Regulating Reserves – 4% of the total demand for each dispatch interval;
 - 4.4.3 Dispatchable Reserves – the second largest online unit for each dispatch interval.
- 4.5 Notwithstanding, the required levels identified above shall be satisfied by the SO through combination of ASPAs and Reserve Market procurement.

Section 5. Reserve Market Participation Requirements. The following shall govern the participation of ASPs in the Reserve Market:

- 5.1 All facilities duly tested with valid certification to provide AS from the NGCP or any qualified third party to provide reserves shall participate in the Reserve Market. Upon effectivity of this Circular, the MO shall submit proposed amendments to the WESM Rules and Manual for the registration of ASPs and commence the registration process for the facilities currently certified to provide AS.
- 5.2 Subject to AS capability testing and accreditation procedures, EGs shall be allowed to participate in the WESM as ASPs, provided, that protocols among the concerned parties are in place, as stipulated in Section 8.2 of DOE Department Circular No. DC2019-02-0003.
- 5.3 Subject to AS capability testing and accreditation procedures, load facilities shall be allowed to participate in the WESM as ASPs. For this purpose, the SO, in consultation with the MO and host DUs, shall develop and recommend for the approval of the ERC a procedure for accreditation of load facilities as ASPs to allow their participation in the WESM.

Section 6. Third-Party AS Capability Testing Entities. The conduct of a Third-Party AS Capability Testing shall be allowed subject to the ERC's promulgation of guidelines for the selection and accreditation of third-party AS testing entities, in consultation with the electric power industry participants and stakeholders.

Section 7. Pricing and Cost Recovery. The following shall govern the pricing and cost recovery of reserves upon the initial implementation of the Reserve Market:

- 7.1 Pricing of reserves procured through the Reserve Market shall be in accordance with the ERC-approved reserve pricing mechanism to be incorporated in the WESM Price Determination Methodology (PDM).
- 7.2 The WESM Governance Arm, in coordination with the MO, shall propose a mechanism in determining the Price Offer Cap and Floor for Reserves for approval of the ERC.
- 7.3 The existing cost-recovery mechanism for AS shall prevail until such time that a new mechanism is adopted and promulgated by the ERC, taking into consideration the five-minute dispatch market.
- 7.4 The SO shall be responsible for the collection of payments from the electric power industry participants in accordance with the AS Cost Recovery Mechanism (AS-CRM) as approved by the ERC.

Section 8. Settlement. The billing and settlement procedures as provided under the WESM Rules and applicable Market Manuals shall be amended or adopted taking into account the following in the settlement of reserve quantities:

- 8.1 The MO shall net out the contracted reserves from the total reserve quantity scheduled and bill the total spot reserve trading amount to the SO as the single buyer.
- 8.2 The SO shall remit the total spot reserve trading amount to the MO within the deadline set.
- 8.3 The MO shall remit payment to ASPs with respect to their spot reserve quantities.
- 8.4 The SO shall settle the contracted capacity payments for scheduled ASPs outside the market and in accordance with their respective ASPAs.
- 8.5 Contracted ASPs shall recover their AS rates for dispatched capacities through settlement in the WESM, subject to the provisions indicated in their ASPA with the SO.

Section 9. Responsibilities of the System Operator. In addition to its responsibilities under Department Circular No. DC2019-12-0018, the SO shall:

- 9.1 Establish necessary infrastructure and protocols to implement dispatch of co-optimized five-minute energy and reserve schedules;
- 9.2 Collaborate with the MO in reviewing and preparing proposed amendments to WESM Rules and Manuals incorporating the policies provided in this Circular;
- 9.3 Formulate protocols for collection of AS cost from electric power industry participants and remittance to MO of Reserve Market trading quantities;
- 9.4 Ensure adequate and least cost procurement of AS through combination of ASPAs and Reserve Market procurement;
- 9.5 Ensure the completion of AS capability testing of all generating facilities and certification thereof, pursuant to Section 3 of DOE Department Circular No. DC2019-12-0018.
- 9.6 Conduct a CSP for ASPAs in accordance with the guidelines on CSP for AS to be promulgated by the DOE;
- 9.7 Review and renegotiate, as applicable, its existing ASPAs with ASPs to ensure efficient transition to the AS classifications in the PGC 2016 and to include provisions for replacement of unscheduled reserves; and
- 9.8 Within three (3) years, conduct further studies, in coordination with the stakeholders as applicable, to be submitted to the DOE and/or the ERC, relative to the transition to the enhanced Reserve Market and AS implementation, including, but not limited to, the following:
 - 9.8.1 Introduction of raise and lower services for reserve categories, as applicable, and corresponding technical specifications;

- 9.8.2 Determination of required reserve levels, particularly for frequency regulation vis-à-vis 5-minute dispatch interval implementation; and
- 9.8.3 Conversion of existing ASPAs to incorporate corresponding new reserve categories subject to the agreement with the ASP counterparty and approval of the ERC.

Section 10. Responsibilities of the Market Operator. In addition to its responsibilities under Department Circular No. DC2019-12-0018, the MO shall:

- 10.1 Review and/or submit proposed amendments to the WESM Rules and Manuals incorporating the policies provided in this Circular to the WESM Rules Change Committee;
- 10.2 Ensure adherence of its market system's functionalities with the Reserve Market Design provided in this Circular;
- 10.3 In coordination with the stakeholders, as necessary, recommend to the DOE and the ERC a methodology for determining reserve conformance standards, such as the use of Reserve Effectiveness Factors, to ensure adequate response of scheduled ASPs during contingent events. and incorporate the same in the WESM Rules and appropriate Market Manuals; and
- 10.4 Within three (3) years, conduct further studies, in coordination with the SO as applicable, to be submitted to the DOE and/or the ERC, relative to the transition to the enhanced Reserve Market and AS implementation, including, but not limited to, the following:
 - 10.4.1 Introduction of raise and lower services for reserve categories, as applicable, and corresponding technical specifications;
 - 10.4.2 Determination of required reserve levels, particularly for frequency regulation vis-à-vis 5-minute dispatch interval implementation; and
 - 10.4.3 Simulation of appropriate levels of reserve offer cap, offer floor, and price cap, as may be necessary.

Section 11. Responsibilities of the WESM Governance Arm. The WESM Governance Arm shall:

- 11.1 Determine the readiness of the WESM Reserve Market based on the readiness criteria provided in Section 6 of DC2019-12-0018 and shall thereafter issue a certification of readiness subject to the assessment and final confirmation by the DOE.
- 11.2 Submit through the PEM Board, for the DOE's final approval, proposed amendments to the WESM Rules and Manuals incorporating the policies provided in this Circular, in accordance with the rules change process;

- 11.3 Monitor compliance and conformance of ASPs with the schedule and dispatch instructions for energy and reserves issued by the MO and SO, respectively, and submit a monthly report on the same to the DOE and ERC; and
- 11.4 Within three (3) years, conduct further studies to be submitted to the DOE and/or the ERC, relative to the transition to the enhanced Reserve Market and AS implementation, including, but not limited to, the following:
 - 11.4.1 Criteria for determination of readiness of electric power industry participants for the enhanced Reserve Market implementation; and
 - 11.4.2 Benchmarking of methodologies for determining appropriate values for reserve offer price cap and floor.

Section 12. Responsibilities of AS Providers. Generation Companies and Load Facilities duly certified as ASPs and/or intending to participate in the Reserve Market shall:

- 12.1 Undergo AS capability testing and certification and conduct re-testing, as necessary, and register in the WESM for the AS it is technically capable to provide, as certified by the SO or any qualified third-party AS testing entity duly accredited by the ERC;
- 12.2 Comply with the schedule and dispatch instructions for energy and reserves issued by the MO and SO, respectively; and
- 12.3 Adhere to the billing and settlement timelines of the MO and SO with respect to AS transactions.

Section 13. Regulatory Support. The ERC is hereby directed to review and harmonize all the guidelines, rules, and regulations concerning the utilization of AS in accordance with this Circular.

- 13.1 For the immediate implementation of the Reserve Market, the ERC shall have the following responsibilities:
 - 13.1.1 Approval of the PDM for spot reserve transactions; and
 - 13.1.2 Approval of the methodology in determining reserve market price cap and floor, as deemed necessary.
- 13.2 Further, as additional responsibilities, the ERC shall assess and evaluate the following:
 - 13.2.1 Formulation of equitable cost-recovery mechanism for AS transactions, as may be necessary;
 - 13.2.2 Issuance of rules and guidelines for the selection of third-party AS testing entity;

13.2.3 Approval of AS Procurement Agreements and renegotiations filed by the SO and ASPs;

13.2.4 Review and approval of proposed amendments or revisions to the PGC 2016 relative to the implementation of the Reserve Market; and

13.2.5 Evaluation of the implementation of the provisions on AS in the PGC 2016 and the incorporation of the new AS categories and corresponding technical specifications in the enhanced Reserve Market Design.

Provided, that such evaluation shall not deter the initial implementation of the Reserve Market.

13.3 The ERC is further directed to issue and/or amend relevant Rules necessary for the implementation of the Reserve Market and this Circular.

Section 14. Separability. If any provision of this Circular is declared invalid or unconstitutional, the other provisions not affected thereby shall remain valid and subsisting.

Section 15. Repealing Clause. All issuances inconsistent with the provisions of this Circular are hereby repealed or amended accordingly.

Section 16. Effectivity. This Circular shall take effect fifteen (15) days following its publication in two (2) newspapers of general circulation. Copies thereof shall be filed with the University of the Philippines Law Center – Office of National Administrative Register (UPLC-ONAR).

Issued on _____ 2021 at the Energy Center, Rizal Drive, Bonifacio Global City, Taguig City.


ALFONSO G. CUSI
Secretary



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