WHOLESALE ELECTRICITY SPOT MARKET
RULES CHANGE COMMITTEE

RESOLUTION NO. 2020-06

Proposed Amendments to the WESM Manual on Protocol for Central Scheduling and Dispatch of Energy and Contracted Reserves

WHEREAS, the DOE on 26 March 2014[1] directed the implementation of Central Scheduling and Dispatch of Energy and Contracted Reserves for the DOE to monitor all available generation capacity in both energy and reserve, and to prepare the participants for the eventual commercial operation of the WESM Reserve Market;

WHEREAS, the Protocol for Central Scheduling and Dispatch of Energy and Contracted Reserves ("Protocol") was promulgated on 02 December 2014[2] and amended on 12 November 2015[3], to provide the functions and responsibilities of the Market Operator, System Operator, Trading Participants, and WESM Members with respect to the scheduling and dispatch of energy and reserve capacities;

WHEREAS, the Central Scheduling and Dispatch of Energy and Contracted Reserves was implemented on 22 December 2015 in the Luzon grid, and then on 07 October 2017 in the Visayas grid;

WHEREAS, the DOE on 23 October 2015[4] adopted enhancements to the WESM design and operations, including the change from a 1-hour dispatch interval to a 5-minute dispatch interval;

WHEREAS, the DOE on 04 December 2019[5] directed that prior to the commercial operation of the Reserve market, that is, the co-optimization of energy and reserves in the WESM, the protocol for the central scheduling of energy and contracted reserves in the WESM shall still apply, in accordance with the WESM Rules and relevant Market Manuals;

[1] DOE Department Circular No. 2014-03-0009 (26 March 2014)
[2] DOE Department Circular No. 2014-12-0022 (02 December 2014)
[3] DOE Department Circular No. 2015-11-0018 (12 November 2015)
[4] DOE Department Circular No. 2015-10-0015 (23 October 2015)
[5] DOE Department Circular No. 2019-12-0018 (04 December 2019)

WHEREAS, the Independent Electricity Market Operator of the Philippines (IEMOP) submitted to the Rules Change Committee (RCC) on 30 March 2020 the proposed urgent amendments to the Protocol, which is intended to be implemented upon the commencement of an energy only market for the enhanced WESM design and operations on 26 June 2020 ("Go-Live Date");

WHEREAS, during the 163rd Special Meeting of the RCC on 01 April 2020, IEMOP presented the proposal noting that the proposal addresses observed operational issues since 2015 and features the following amendments, among others:

- Scheduling is within ramp-limited energy and upward / downward regulation capability every five (5) minutes during real-time dispatch
- Dispatchable reserve providers can conform to the A/S nomination from its off-line state
- Improve accounting of quantities for additional compensation claims in the WESM
- Clarify compliance requirements of ancillary service providers with the Central Scheduling Protocol under their ASPAs

WHEREAS, during said meeting, the RCC evaluated the proposal and gave due course to the comments, which are summarized as follows:

- On the Urgency of the Proposal:
  - Not urgent, since the grid security and power quality can still be maintained by the System Operator even if the Protocol is not updated;
  - Urgent, since the revised Protocol would be a stopgap measure in the scheduling and dispatching of reserves while there is no Reserve Market yet on the Go-Live Date;
  - Urgent, to address the commercial aspect of accounting reserves in the WESM by documenting and facilitating the better validation and accounting of energy and reserve quantities;

- The regulating reserves requirement should be clearly set based on a specified percentage of the demand for reference of Trading Participants;
- The binding schedule for reserves will still be those every one (1) hour interval under the Day-Ahead Ancillary Service Schedule (DAASS) even if the WESM real-time scheduling and dispatching of energy and reserves will be every five (5) minutes;
- The availability of generation capacities should have greater priority than ensuring that dispatchable reserve providers are not dispatched for energy;
- The System Operator is exempted from the confidentiality of metering data of Ancillary Service Providers per WESM Rules Clause 5.3.2. The Market Operator and System Operator needs to share information for the proper accounting of Ancillary Service Incidental Energy and imposition of penalties, as applicable, by the System Operator;

WHEREAS, in view of the foregoing, the RCC certified the same as urgent after considering that it satisfies the criteria for urgent amendments specified in Section 3.1 of the Procedures for Changes to the WESM and Retail Rules and Market Manuals ("Rules Change Manual"), specifically, to facilitate the implementation of the energy only market for the enhanced WESM design and operations on 26 June 2020;

WHEREAS, the RCC approved the proposal, as amended, and its endorsement to the PEM Board;

WHEREAS, the RCC further approved to recommend the PEM Board's endorsement to the DOE, for approval, considering that the Protocol was originally approved and amended by the DOE upon submission of PEMC[6];

NOW THEREFORE, we, the undersigned, in behalf of the sectors we represent, hereby resolve as follows:

RESOLVED, that the RCC approves the Proposed Urgent Amendments on the Protocol for Central Scheduling and Dispatch of Energy and Contracted Reserves (attached as Annexes A and B);

RESOLVED FURTHER, that the said Proposed Urgent Amendments on the Protocol for Central Scheduling and Dispatch of Energy and Contracted Reserves are hereby endorsed to the PEM Board for approval for implementation upon Go-Live Date, and subsequent transmittal to the DOE for information/appropriate action.

Done this 01 April 2020, Pasig City.

[6] Section 6 of the Protocol – Modifications and Effectivity

Approved by: **THE RULES CHANGE COMMITTEE**	
Independent Members:	
Maila Lourdes G. de Castro Chairperson	[redacted]
[redacted] **Allan C. Nerves**	[redacted] **Concepcion I. Tanglao**
Generation Sector Members:	
[redacted] **Dixie Anthony R. Banzon** Masinloc Power Partners Co. Ltd. (MPPCL)	[redacted] **Cherry A. Javier** Aboitiz Power Corp. (APC)
[redacted] **Carlito C. Claudio** Millennium Energy, Inc./ Panasia Energy, Inc. (MEI/PEI)	[redacted] **Mark D. Habana** Vivant Corporation - Philippines (Vivant)
Distribution Sector Members:	
[redacted] **Virgilio C. Fortich, Jr.** Cebu III Electric Cooperative, Inc. (CEBECO III)	[redacted] **Ryan S. Morales** Manila Electric Company (MERALCO)
[redacted] **Ricardo G. Gumalal** Iligan Light and Power, Inc. (ILPI)	[redacted] **Nelson M. Dela Cruz** Nueva Ecija II Area 1 Electric Cooperative, Inc. (NEECO II – Area 1)

[redacted]

Supply Sector Member:
[redacted] **Lorreto H. Rivera** TeaM (Philippines) Energy Corporation (TPEC)
Market Operator Member:
[redacted] **Isidro L. Cacho, Jr.** Independent Electricity Market Operator of the Philippines (IEMOP)
System Operator Member:
[redacted] **Ambrocio R. Rosales** National Grid Corporation of the Philippines (NGCP)

Annex A

Protocol for Central Scheduling and Dispatch of Energy and Contracted Reserves Issue 1.0

Title	Section	Provision	Proposed Amendment	Rationale
INTRODUCTION	(new)	N / A	**1.1.4** ***DOE*, through their Department Circular DC2015-11-0018, promulgated the implementation of the Central Scheduling and Dispatch of Energy and Contracted Reserves. It was effectively implemented on 22 December 2015 for the Luzon *grid*. It was then implemented in the Visayas *grid* on 07 October 2017.**	The revision is being proposed to reflect the legal basis of the promulgation of the central scheduling and dispatch of energy and contracted reserves under the DOE DC 2015-11-0018.
INTRODUCTION	(new)	N / A	**1.1.5** ***DOE*, through their Department Circular DC2015-10-0015, adopted Enhancements to the *WESM* Design and Operations, which included the change from a 1-hour *dispatch interval* to a 5-minute *dispatch interval*.**	The revision is being proposed to reflect the transition from 1-hour to five-minute dispatch interval upon the implementation of the enhanced WESM design and operations.

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Title	Section	Provision	Proposed Amendment	Rationale
INTRODUCTION	(new)	N / A	**1.1.6 *DOE*, through their Department Circular DC2019-12-0018, defined the classification and required levels of *ancillary services* (A/S) pending the harmonization of A/S related issuances and review of the relevant provisions of the 2016 edition of the Philippine *Grid Code* (PGC 2016).**	The revision is being proposed to reflect that this manual is being harmonized with the recent DOE DC 2019-12-0018 on the general framework governing the provision and utilization of ancillary services in the grid, and is also aligned with the 2016 edition of the PGC.
INTRODUCTION	1.2.1	Pursuant to the DOE Department Circular DC2014-03-0009, this Protocol implements the directive for NGCP and PEMC to formulate the Central Scheduling and Dispatch of Reserves Protocol. This Protocol shall be referred to as the "Protocol for Central Scheduling and Dispatch of Energy and Contracted Reserves".	Pursuant to the *DOE* Department Circular DC2014-03-0009 **and DC2019-12-0018**, this Protocol implements the directive for ~~NGCP~~ **the *System Operator*** and **the *Market Operator*** ~~PEMC~~ to formulate and maintain the Central Scheduling and Dispatch of Reserves Protocol. This Protocol shall be referred to as the "Protocol for Central Scheduling and Dispatch of Energy and Contracted Reserves".	The revision is being proposed to reflect that this manual is aligned with the provisions of the DOE DC2019-12-0018. With the transition of market operations to the Independent Market Operator, it is also proposed that references to PEMC be revised to Market Operator.

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Title	Section	Provision	Proposed Amendment	Rationale
INTRODUCTION	(new)	N / A	**1.2.5** **This Protocol shall continue to be applied upon the implementation of the 5-minute *dispatch interval* unless otherwise stated by a new directive from the *DOE* and/or the *ERC*.**	The revision is being proposed to reflect that this protocol will be applicable and effective with the implementation of the enhanced WESM design and operations.
INTRODUCTION	1.3.1	This Protocol shall apply to the Market Operator, the System Operator and all WESM Members, including intending WESM Members, and Participants in the electric power industry for a limited period and shall immediately cease upon New Commercial Launch Date of the WESM Reserve Market pursuant to the provisions of the DOE Department Circular No. DC2014-03-0009.	This Protocol shall apply to the *Market Operator*, the *System Operator* and all *WESM Members*, including *intending WESM Members*, and ***WESM Participants*** in the electric power industry for a limited period and shall immediately cease upon New Commercial Launch Date of the WESM Reserve Market pursuant to the provisions of the *DOE* Department Circular No. DC2014-03-0009 **and DC2019-12-0018**.	The revision is being proposed to reflect that this manual is aligned with the provisions of the DOE DC2019-12-0018.
INTRODUCTION	1.3.2	Pursuant to the provisions of the DOE Department Circular No. DC2014-03-0009, all scheduled ASPA Contracts shall be settled in accordance with the respective provisions of their contract and no settlement of reserves shall be made in the WESM.	Pursuant to the provisions of the *DOE* Department Circular No. DC2014-03-0009 **and DC2019-12-0018**, all scheduled ASPA Contracts shall be settled in accordance with the respective provisions of their contract and no *settlement* of *reserves* shall be made in the *WESM*.	The revision is being proposed to reflect that this manual is aligned with the provisions of the DOE DC2019-12-0018.

[redacted]

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Title	Section	Provision	Proposed Amendment	Rationale
DEFINITIONS, REFERENCES AND INTERPRETATION	2.1.2	Unless otherwise defined in the Glossary of this document or unless the context provides otherwise, all terms used in this Protocol that are defined in the WESM Rules shall have the meaning as so defined in the WESM Rules and relevant Market Manuals.	Unless otherwise defined in ~~the Glossary~~ **Section 2** of this document or unless the context provides otherwise, all terms used in this Protocol that are defined in the WESM Rules shall have the meaning as so defined in the WESM Rules and relevant Market Manuals.	This Manual does not have Glossary. Definitions are provided in Section 2.
DEFINITIONS, REFERENCES AND INTERPRETATION		(new)	**2.1.3 Maximum Operating Limit refers to the maximum MW capability that a generator can obtain for a target time or dispatch interval based on its offer capacity while considering its current state, its ramp-up capability, and over-riding constraints, if there are any.**	For clarity, since this term is used in Section 5.1
DEFINITIONS, REFERENCES AND INTERPRETATION		(new)	**2.1.4 Minimum Operating Limit refers to the minimum MW capability that a generator can obtain for a target time or dispatch interval based on its offer capacity while considering its current state, its ramp-down capability, and over-riding constraints, if there are any.**	For clarity, since this term is used in Section 5.1

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Title	Section	Provision	Proposed Amendment	Rationale
REFERENCES	2.2.1	This Protocol should be read together with WESM Dispatch Protocol Manual, including Chapters 3 and 6 of the WESM Rules, whenever applicable, and the DOE Department Circular No. DC2014-03-0009.	This Protocol should be read together with *WESM* Dispatch Protocol Manual, including Chapters 3 and 6 of the *WESM Rules*, whenever applicable, and the *DOE* Department Circular No. DC2014-03-0009 **and DC2019-12-0018**.	The revision is being proposed to reflect that this manual is aligned with the provisions of the DOE DC2019-12-0018.
RESPONSIBILITIES	3.2.3	The System Operator shall continue to perform the monitoring, and settlement of reserves pursuant to each provider's ASPA.	The System Operator shall continue to **contract out AS required capacities and** perform the monitoring, and settlement of reserves pursuant to each provider's ASPA.	The revision is being proposed to clarify that SO shall have the responsibility to contract out the ancillary services required capacities.
CENTRAL SCHEDULING OF RESERVE CAPACITIES	4.1	4.1 DETERMINATION OF RESERVE REQUIREMENTS 4.1.1 Appendix A.12 – Section 4 of the WESM Dispatch Protocol Manual provides the criteria for the determination of reserve requirements wherein all reserve requirement levels are set by the System Operator through the Ancillary Services Procurement Plan (ASPP) or as ERC-approved level of reserve requirement.	4.1 ~~DETERMINATION OF~~ **RESERVE TYPES AND** RESERVE REQUIREMENTS 4.1.1 ~~Appendix A.12 – Section 4 of the WESM Dispatch Protocol Manual provides the criteria for the determination of reserve requirements wherein all reserve requirement levels are set by the System Operator through the Ancillary Services Procurement Plan (ASPP) or as ERC-approved level of reserve requirement.~~ **As stated in *DOE* Department Circular DC2019-12-0018, the following *reserve* types, and its**	The revision is being proposed to reflect that the reserve types and reserve requirements were harmonized and aligned with the provisions of the DOE DC2019-12-0018.

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<td>4.1.2 The Market Operator shall use the results of the hourly forecasted demand of the 1200H Day-Ahead Projection (DAP) for the regulating, contingency, and dispatchable reserve requirements for the next day.
4.1.3 Should the System Operator prescribe regulating, contingency, and dispatchable reserve requirements for relevant periods, the Market Operator shall use such levels as input to the MDOM for consistency.</td>
<td><u>associated reserve requirements, shall be allocated per one-hour interval and per grid.</u>

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<tr><th><u>Reserve Type</u></th><th><u>Description</u></th><th><u>Reserve Require-ment</u></th></tr>
<tr><td><u>Regula-ting Reserve</u></td><td><u>Readily available and dispatch-able generating capacity that is allocated exclusively to correct deviations from the acceptable nominal frequency caused by unpredic-ted variations in demand or generation output</u></td><td><u>4% of the total demand</u></td></tr>
<tr><td><u>Conting-ency Reserve</u></td><td><u>Synchro-nized generation capacity from qualified generating units and qualified interrupti- ble loads allocated to cover the loss or failure of a synchro- nized generating unit</u></td><td><u>Maxi-mum capacity among the (a) largest synchro-nized genera-ting units, (b) trans-mission element, or (c)</u></td></tr>
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	or a transmi-ssion element or the power import from a circuit intercon- nection	**power import from a circuit intercon-nection**
Dispat-chable Reserve	**Generating capacity that is not scheduled for regular energy supply, *regulating reserve*, *contingen-cy reserve*, or *interrup- tible loads* not scheduled for *contingen-cy reserve*, and that are readily available for *dispatch* in order to replenish the *contingen-cy reserve* service whenever a generating unit trips or a loss of a single transmi-ssion inter-connection occurs**	**Maxi-mum capacity among the (a) second largest synchro-nized genera-ting units, (b) trans-mission element, (c) power import from a circuit interco-nnection**

4.1.2 ~~The Market Operator shall use the results of the hourly forecasted demand~~

Title	Section	Provision	Proposed Amendment	Rationale
			~~of the 1200H Day Ahead Projection (DAP) for the regulating, contingency, and dispatchable reserve requirements for the next day.~~ **For *regulating reserves*, the requirement shall be:** **4.1.2.1 Set to 2% of the demand for upward regulation, and 2% of the demand for downward regulation** **4.1.2.2 The *System Operator* may, at its option, set different reserve requirement levels for upward regulation and downward regulation provided that they add up to the prescribed *regulating reserve* requirement that is stated in clause 4.1.1 of this Protocol.** ~~4.1.3 Should the System Operator prescribe regulating, contingency, and dispatchable reserve requirements for relevant periods, the Market Operator shall use such levels as input to the MDOM for consistency.~~	

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Title	Section	Provision	Proposed Amendment	Rationale
CENTRAL SCHEDULING OF RESERVE CAPACITIES	(inserted)	(new)	**4.2** **Use of Day-Ahead Projections and Over-riding Constraints**	Transferred original Section 4.1.2 and provided details
CENTRAL SCHEDULING OF RESERVE CAPACITIES	(inserted)	(new)	**4.2.1** **The *Market Operator* shall provide the results of the *Day-Ahead Projection*, particularly covering the one-hour intervals of the next *trading day*, to the *System Operator* so that it can be used for determining the *MW* levels of the *reserve* requirement for each type of *reserve* in each *grid*/region.**	Transferred from original Section 4.1.2
CENTRAL SCHEDULING OF RESERVE CAPACITIES -	(inserted)	(new)	**4.2.2** **The *System Operator* shall submit the level of reserve requirement for each type of *reserve* of each *grid*/region for a period of time, while taking into account the covered period of the *market projections* and the real-time *dispatch*, and in accordance with the *WESM* Timetable.**	Transferred from original Section 4.1.2

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Title	Section	Provision	Proposed Amendment	Rationale
CENTRAL SCHEDULING OF RESERVE CAPACITIES	(inserted)	(new)	**4.2.3** **The *System Operator* may submit *over-riding constraints* to impose limits on the energy flow along specific *transmission lines* or branch groups to allow reserve capacities to be dispatched without over-loading.**	Proposed to ensure that scheduled reserves may be utilized in real-time to provide the service without overloading lines
CENTRAL SCHEDULING OF RESERVE CAPACITIES	(inserted)	(new)	**4.2.4** **At the very least, the limitation of the energy flow along specific *transmission lines* or branch groups shall allow additional energy flow equivalent to the upward regulation requirement.**	Proposed to ensure that scheduled reserves may be utilized in real-time to provide the service without overloading lines
CENTRAL SCHEDULING OF RESERVE CAPACITIES	(inserted)	(new)	**4.2.5** **The *Market Operator* shall use the Day-Ahead Ancillary Service Schedule (DAASS) provided by the *System Operator* to validate the AS schedule nominated by the *Trading Participant* and ensure that the capacities scheduled be available in the *Real-Time Dispatch* (RTD).**	Proposed to ensure that validation of AS schedule nominated by Trading Participant be based on the submitted DAASS from SO and to ensure the availability of the capacities schedule in the RTD.

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Title	Section	Provision	Proposed Amendment	Rationale
CENTRAL SCHEDULING OF RESERVE CAPACITIES	4.2	4.2 Submission of Generation and Reserve Offers for Market Projections 4.2.1 XXX 4.2.2 Only trading Participants with ERC-Approved ASPA shall submit reserve offers for the market projections (WAP and DAP) of the WESM. The reserve offers shall correspond to their ancillary nominations to NGCP pursuant to the provisions of their respective ASPAs. 4.2.3 Trading Participants shall submit their generation and reserve offers consistent with the WESM Timetable for the Week-Ahead and Day-Ahead market projections to provide a more accurate determination of reserve requirements as set forth in	4.~~2~~**3** Submission of Generation and Reserve Offers for Market Projections 4.~~2~~**3**.1 XXX 4.~~2~~**3**.2 ~~Only t~~***T****rading Participants* with *ERC*-Approved ASPA shall submit reserve offers **for the *one-hour intervals* of the next *trading day*** ~~for the market projections (WAP and DAP) of the WESM~~ **prior to 1130H of the current *trading day***. The **capacities of their** *reserve offers* shall correspond to their ancillary nominations to **the *System Operator*** ~~NGCP~~ pursuant to the provisions of their respective ASPAs.	Re-numbered with the insertion of Section 4.2 Clarify the timelines for submitting reserve offers

		Section 4.1 of this Protocol. 4.2.4 The submission of nominations and offers for Ancillary Services shall be based on per single unit per single type per interval of reserve service in accordance with Appendix A.12 of the WESM Dispatch Protocol Manual. 4.2.5 The Trading Participant shall see to it that the nomination submitted to the Market Operator shall be based on the day-ahead ancillary service schedule (DAAS) approved by the System Operator. For Regulating Reserves, only 50% (one-half) of the approved capacity by the System Operator shall be reflected by the Trading Participant to the Market Operator through the Market Participant Interface (MPI). 4.2.6 If a generating unit is not scheduled as a dispatchable reserve, and it has a zero	4.~~2~~**3**.~~3~~**3** *Trading Participants* shall submit their *generation* and *reserve offers* consistent with the *WESM* Timetable for the ~~Week-Ahead and~~ *Day-Ahead* ~~market~~ *Projections* to provide a more accurate determination of *reserve* requirements as set forth in Section 4.1 of this Protocol. ~~4.2.4 The submission of nominations and offers for Ancillary Services shall be based on per single unit per single type per interval of reserve service in accordance with Appendix A.12 of the WESM Dispatch Protocol Manual.~~ ~~4.2.5 The Trading Participant shall see to it that the nomination submitted to the Market Operator shall be based on the day-ahead ancillary service schedule (DAAS) approved by the System Operator. For Regulating Reserves, only 50% (one-half) of the approved capacity by the System Operator shall be reflected by the Trading Participant to the Market Operator through the Market Participant Interface (MPI).~~	The System Operator is now allowing reserve provision on an aggregate basis (e.g., Trans-Asia, Subic Enron). Transferred to proposed Section 4.2 Original Sections 4.2.6 and 4.2.7 will not be required with the implementation of economic scheduling of Pmin under enhanced

		commercial Pmin and a non-zero technical Pmin, the Market Operator shall submit a security limit for that generating unit indicating its technical Pmin as the minimum operating limit, whereas its maximum operating limit shall correspond to its maximum offered capacity. 4.2.7 If a generating unit is scheduled as a dispatchable reserve, and it has a non-zero commercial Pmin, the Market Operator shall submit a security limit for that generating unit indicating zero (0) as its minimum operating limit, whereas its maximum operating limit shall correspond to its maximum offered capacity.	~~4.2.6 If a generating unit is not scheduled as a dispatchable reserve, and it has a zero commercial Pmin and a non zero technical Pmin, the Market Operator shall submit a security limit for that generating unit indicating its technical Pmin as the minimum operating limit, whereas its maximum operating limit shall correspond to its maximum offered capacity.~~ ~~4.2.7 If a generating unit is scheduled as a dispatchable reserve, and it has a non zero commercial Pmin, the Market Operator shall submit a security limit for that generating unit indicating zero (0) as its minimum operating limit, whereas its maximum operating limit shall correspond to its maximum offered capacity.~~ **4.3.4** **The *generating unit* representation of A/S providers in the *Market Network Model* shall be consistent with the *System Operator's* model for**	WESM design and operations

Title	Section	Provision	Proposed Amendment	Rationale
			scheduling, monitoring, dispatching, and settlement of such A/S providers.	MNM representation should be consistent with the System Operator.
CENTRAL SCHEDULING OF RESERVE CAPACITIES	4.3	4.3 Day-Ahead Scheduling of Reserves by the System Operator 4.3.1 XXX 4.3.2 Trading Participant shall ensure that they nominate all available capacity to the Market Operator based on the approved day-ahead ancillary schedule. 4.3.3 The System Operator shall provide the approved day-ahead ancillary service schedule (DAAS) to the Market Operator and ASPA providers not later than 1700H.	4.~~3~~**4** Day-Ahead Scheduling of *Reserves* by the *System Operator* 4.~~3~~**4**.1 XXX 4.~~3~~**4**.2 *Trading Participants* shall ensure that they ~~nominate all~~ **submit their *maximum*** *available capacity* to the ~~Market Operator~~ ***WESM***, **inclusive of *reserve offers*** based on the approved day-ahead ancillary schedule. 4.~~3~~**4**.~~3~~**3** The *System Operator* shall provide the **reserve requirements and** approved day-ahead ancillary service schedule (DAAS**S**) to the *Market Operator* ~~and ASPA providers not later than 1700H.~~ **4.4.4** **The *System Operator* shall provide the approved day-ahead ancillary service schedule (DAASS) to the relevant *Trading Participants* and ASPA providers not later than 1700H.**	Re-numbered with the insertion of Section 4.2. To clearly define timelines for submission of information to the Market Operator, Trading Participants, and A/S providers

Title	Section	Provision	Proposed Amendment	Rationale
			4.4.5 **By 1900H, *Trading Participants* shall submit their updated *generation* and *reserve offers* for the next *trading day*, ensuring that the *reserve offer* submitted to the *Market Operator* shall be consistent with their respective DAASS.** **4.4.6 For *Regulating Reserves*, unless otherwise distinctly specified by the *System Operator*, *Trading Participants* shall submit half of its DAASS capacity for upward regulation, whereas the other half shall be submitted for downward regulation to the *Market Operator* through the Market Participant Interface (MPI).**	

Title	Section	Provision	Proposed Amendment	Rationale
CENTRAL SCHEDULING OF RESERVE CAPACITIES	4.4	4.4 Submission of Generation and Reserve Offers for the Real-Time Dispatch (RTD) 4.4.1 XXX 4.4.2 Trading Participants that were scheduled by the System Operator to provide a specific reserve for a specific trading interval shall submit a reserve offer in the WESM equivalent to the capacity scheduled by the System Operator in accordance with Section 4.3 of this Protocol. a. Only two (2) reserve offer break quantities shall be submitted b. The first block should have a quantity (MW) of 0 MW c. The second block should have a quantity equivalent to the day-ahead schedule identified in Section 4.3 of this Protocol for that relevant trading interval d. The first and second price offer blocks shall be priced at PhP0.0/MWh only.	4.4**5** Submission of Generation and Reserve Offers for the Real-Time Dispatch (RTD) 4.4**5**.1 XXX 4.4**5**.2 *Trading Participants* that were scheduled by the *System Operator* to provide a specific *reserve* **service** for a specific ~~trading~~ **one-hour** interval shall submit a *reserve offer* ~~in the WESM equivalent to the capacity scheduled by the System Operator in accordance with Section 4.3 of this Protocol~~ **based on the following guidelines**: a. Only two (2) *reserve offer* break quantities shall be submitted b. The first block should have a quantity (MW) of 0 MW c. The second block should have a quantity equivalent to the ~~day-ahead schedule~~ **DAASS** identified in Section 4.~~3~~**4** of this Protocol for that relevant trading interval	Re-numbered with the insertion of Section 4.2.

Title	Section	Provision	Proposed Amendment	Rationale
			d. The first and second price offer blocks shall be priced at PhP0.0/MWh only. **e. <u>For *regulating reserves*, unless otherwise distinctly specified by the *System Operator*, *Trading Participants* shall submit half of its DAASS capacity for upward regulation, whereas the other half shall be submitted for downward regulation.</u>**	

Title	Section	Provision	Proposed Amendment	Rationale
		4.4.3 For Trading Participants that were scheduled by NGCP to provide regulation service for the next day(s), they shall submit a reserve offer equal to one-half (1/2) of their day-ahead ancillary schedule to account for the upward and downward dispatch. 4.4.4 All Trading Participants shall observe the "Open Market Window" in submitting generation and reserve as stated in Section 4.4 of Appendix A.1 of the WESM Dispatch Protocol Manual.	~~4.4.3 For Trading Participants that were scheduled by NGCP to provide regulation service for the next day(s), they shall submit a reserve offer equal to one-half (1/2) of their day-ahead ancillary schedule to account for the upward and downward dispatch.~~ 4.4**5**.4**3** All *Trading Participants* shall observe the "Open Market Window" in submitting *generation* and *reserve* ***offers*** as stated in ~~Section 4.4 of Appendix A.1 of~~ the *WESM* Dispatch Protocol Manual.	

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Title	Section	Provision	Proposed Amendment	Rationale
CENTRAL SCHEDULING OF RESERVE CAPACITIES	4.5	4.5 Re-nomination of Reserve Capacities	4.5**6 Revision in the Reserve Requirements and** Re-nomination of Reserve Capacities **4.6.1** **The *System Operator* may update the *reserve* requirements at any time, as may be necessary.**	Re-numbered with the insertion of Section 4.2.
		4.5.1 All ASPA providers may re-nominate capacities for reserve during the actual day of implementation subject to the re-nomination and approval process set forth by the System Operator.	4.5**6**.1**2** All ASPA providers may re-nominate capacities for *reserve* during the actual day of implementation subject to the **AS Guidelines on** re-nomination and approval process set forth by the *System Operator*.	

Title	Section	Provision	Proposed Amendment	Rationale
		4.5.2 Should an ASPA provider's re-nominated capacity be approved by the System Operator, the ASPA provider shall update its generation and reserve offer in the WESM for the relevant trading intervals while observing the "Open Market Window" as stated in Section 4.4 of Appendix A.1 of the WESM Dispatch Protocol Manual.	4.5~~6~~**6**.~~2~~**3** Should an ASPA provider's re-nominated capacity be approved by the *System Operator*, the ASPA provider shall update its *generation* and *reserve offer* in the WESM for the relevant ~~trading~~ **one-hour** intervals while observing the "Open Market Window" as stated in ~~Section 4.4 of Appendix A.1 of~~ the *WESM* Dispatch Protocol Manual.	Ensure that possible re-nomination of reserve capacities will be in accordance with the AS Guidelines processes set forth by SO
CENTRAL SCHEDULING OF RESERVE CAPACITIES	4.6	4.6 Setting of Constraint Violation Coefficients during Transition	~~4.6 Setting of Constraint Violation Coefficients during Transition~~	Constraint violation coefficients with central scheduling are provided in the WESM Manual on Constraint Violation Coefficients and Pricing Re-Runs.

CENTRAL SCHEDULING OF RESERVE CAPACITIES	4.7	4.7 XXX 4.7.1 Trading Participants shall ensure that their generators are at the appropriate loading levels prior to the trading intervals where it is expected to provide reserve service. This is to ensure that they obtain their intended energy and reserve schedules for the Real-Time Dispatch (RTD) considering their ramping characteristics. 4.7.2 If a generating unit is not scheduled as a dispatchable reserve, and it has a zero commercial Pmin and a non-zero technical Pmin, the Market Operator shall submit a security limit for that generating unit indicating its technical Pmin as the minimum operating limit, whereas its maximum operating limit shall correspond to its maximum offered capacity.	4.7 XXX 4.7.1 ~~Trading Participants shall ensure that their generators are at the appropriate loading levels prior to the trading intervals where it is expected to provide reserve service. This is to ensure that they obtain their intended energy and reserve schedules for the Real-Time Dispatch (RTD) considering their ramping characteristics.~~ **_Generating units_ shall obtain _reserve_ schedules based on the submitted _reserve offers_ in Sections 4.5 and 4.6 of this Protocol with the objective of satisfying the _reserve_ requirements by the _System Operator_.** 4.7.2 If ~~a generating unit is not scheduled as a dispatchable reserve, and it has a zero commercial Pmin and a non-zero technical Pmin, the Market Operator shall submit a security limit for that generating unit indicating its technical Pmin as the minimum operating limit, whereas its maximum operating limit shall correspond to its maximum offered capacity~~ **there is an**	Clause provides basis for the MMS to ensure reserve offers are amply scheduled to meet the reserve requirements, subject to the provisions in clause 4.7.2 and 4.7.3 Provides reference from the CVC manual in setting priorities for scheduling energy and reserve capacities in times of supply deficiency

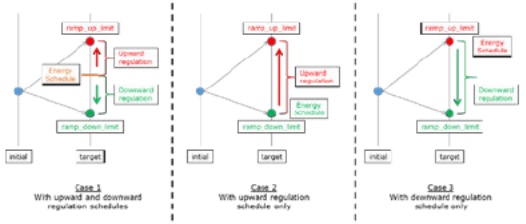
Annex A

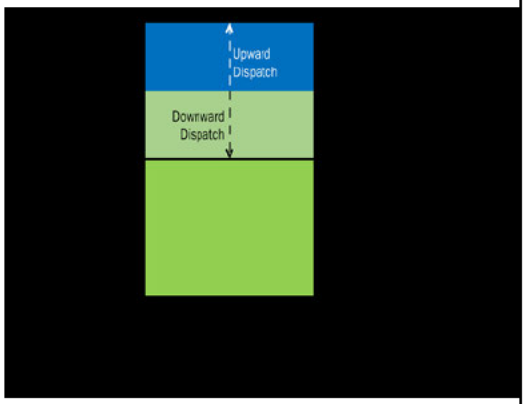
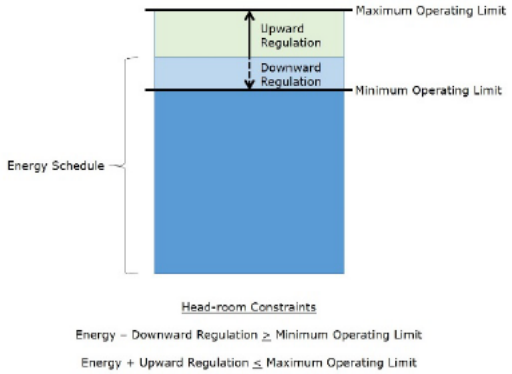
Title	Section	Provision	Proposed Amendment	Rationale
			insufficiency in the generation capacities to meet the *energy* and *reserve* requirements, the Market Management System shall schedule *energy* and *reserve* capacities based on the order of priority set in the *WESM* Manual on Constraint Violation Coefficients and Pricing Re-Runs.	

[redacted]

		4.7.3 If a generating unit is scheduled as a dispatchable reserve, and it has a non-zero commercial Pmin, the Market Operator shall submit a security limit for that generating unit indicating zero (0) as its minimum operating limit, whereas its maximum operating limit shall correspond to its maximum offered capacity. 4.7.4 XXX 4.7.5 XXX 4.7.5.1 XXX 4.7.5.2 XXX 4.7.5.3 XXX 4.7.6 XXX	4.7.3 If ~~a generating unit is scheduled as a dispatchable reserve, and it has a non-zero commercial Pmin, the Market Operator shall submit a security limit for that generating unit indicating zero (0) as its minimum operating limit, whereas its maximum operating limit shall correspond to its maximum offered capacity~~ **there is a thermal or an N-1 contingency constraint, the Market Management System shall schedule a generator's capacity to be scheduled for *energy* instead of being allocated for *reserve* service based on the order of priority set in the *WESM* Manual on Constraint Violation Coefficients and Pricing Re-Runs.** **4.7.4** ***Trading Participants* shall ensure that their generators are at the appropriate *loading levels* prior to the *trading intervals* where it is expected to provide *reserve* service. This is to ensure that they obtain their intended *energy* and *reserve* schedules for the Real-Time	Provides reference from the CVC manual in setting priorities for scheduling energy and reserve capacities in times of supply deficiency Transferred from 4.7.1

			Dispatch **(RTD) considering their ramping characteristics.** **4.7.5** **The Market Management System shall consider ramping constraints for upward and downward regulation services. The following equations show the constraints for energy and regulation schedules while considering ramping limitations:** **4.7.5.1. [Energy] – [Downward regulation] >= [ramp down limit]** **4.7.5.2. [Energy] + [Upward regulation] <= [ramp up limit]** **4.7.6** **With respect to the constraints shown in clause 4.7.5 of this Protocol, the following illustration shows the different cases of the joint ramping of energy and regulation (upward and downward).**	

Title	Section	Provision	Proposed Amendment	Rationale
			 4.7.4**7** XXX 4.7.~~5~~**8** XXX 4.7.~~5~~**8**.1 XXX 4.7.~~5~~**8**.2 XXX 4.7.~~5~~**8**.3 XXX 4.7.~~6~~**9** XXX	
SETTLEMENT OF RESERVE CAPACITIES	4.9	4.9 Settlement of Reserve Capacities 4.9.1 XXX 4.9.2 XXX 4.9.3 Section 4.9.2 shall also consider the energy schedule obtained by an ASPA provider while being scheduled for regulation in the RTD because of the head-room constraint in the Market Dispatch Optimization Model (MDOM). The head-room constraint is imposed in the MDOM so that the energy and regulating reserve schedules are set in a manner so that the downward and	~~4.9~~**5.1** Settlement of Reserve Capacities ~~4.9~~**5.1**.1 XXX ~~4.9~~**5.1**.2 XXX ~~4.9~~**5.1**.3 ~~Section 4.9.2 shall also consider~~ **T**~~t~~he energy schedule obtained by an ASPA provider while being scheduled for **downward** regulation in the RTD because of the head-room constraint in the *Market Dispatch Optimization Model* (MDOM) **shall also be considered**. The head-room constraint is imposed in the MDOM so that the energy and *regulating reserve* schedules are set in a manner ~~so~~ that the downward and	Re-numbered with the insertion of the provision as new Section 5 Used minimum and maximum operating limits instead of Pmin and Pmax for a more correct statement of how head-room constraints are applied in the MDOM.

Title	Section	Provision	Proposed Amendment	Rationale
		upward dispatch of the regulating reserve will not violate the minimum stable loading (Pmin) and maximum available capacity (Pmax), respectively.  4.9.4 XXX 4.9.5 The Market Operator shall perform a simulated billing calculation following the billing cycle and to be made available to WESM members participating in the Central Scheduling and Dispatch of Energy and Contracted Reserves.	upward dispatch of the *regulating reserve* will not violate the minimum ~~stable loading (Pmin)~~ and maximum ~~available capacity (Pmax)~~ **operating limits of a generator**~~, respectively~~.  ~~4.9~~**5.1**.4 XXX ~~4.9.5 The Market Operator shall perform a simulated billing calculation following the billing cycle and to be made available to WESM members participating in the Central Scheduling and Dispatch of Energy and Contracted Reserves.~~	The projections on the spot transactions for the reserve market may be inaccurate and may cause an incorrect perception of how the reserve market will operate.

Title	Section	Provision	Proposed Amendment	Rationale
SETTLEMENT OF RESERVE CAPACITIES	4.10	4.10 XXX 4.10.1 The Market Operator shall submit to the System Operator the hourly ex-ante and ex-post reserve schedules not later than 8AM of the following day.	~~4.10~~**5.2** XXX ~~4.10~~**5.2**.1 The *Market Operator* shall submit to the *System Operator* the ~~hourly ex-ante~~ **RTD energy and *reserve* schedules, and the *generation*** and ~~ex-post~~ *reserve* ~~schedules~~ ***offers* used in the RTD run,** not later than ~~8AM~~ **1200H** of the following day. **5.2.2** **Every Monday, the *System Operator* shall submit the final list of *reserve* schedules for the past week (Monday to Sunday) considering the possible revisions for the actual hour in consideration of Section 4.6 of this Protocol.** **5.2.3** **Not later than the 5th of the month, the *System Operator* shall submit to the *Market Operator* the A/S incidental energy of each A/S provider for each *dispatch interval* during the recently completed *billing period* (e.g., On 05 February 2020, A/S incidental energy shall be submitted by the *System Operator***	Re-numbered with the inclusion of the provision under Section 5 WESM Rules clause 5.3.2 provides exemptions to confidentiality, which includes the System Operator

Title	Section	Provision	Proposed Amendment	Rationale
			for the *billing period* of January 2020). 5.2.4 The *Market Operator* shall coordinate with the *System Operator* on the validation of the accuracy of the A/S incidental energy provided in clause 5.2.3 of this Protocol. The completion of the validation between the *Market Operator* and *System Operator* shall be completed not later than the 15th of the month for the recently completed *billing period*. 5.2.5 Not later than the 18th of the month, the *Market Operator* shall submit to the *System Operator* the *WESM Trading Amount*, including the RTD schedules and *metered quantities*, of each A/S provider for the *dispatch intervals* when the A/S provider had a reserve schedule for the recently completed *billing period*.	

Annex A

Title	Section	Provision	Proposed Amendment	Rationale
A/S PENALTY	(new)	(new)	**SECTION 6 A/S PENALTY** **The *System Operator* shall consider the data submitted by the *Market Operator* in Clause 5.2.1 when applying penalties to A/S providers in accordance with their Ancillary Service Procurement Agreement.**	The revision is being proposed to include provision that data submitted by the Market Operator to the System Operator shall be considered in the application of ancillary services penalties.
PERFORMANCE STANDARDS	SECTION 5	SECTION 5 XXX PEMC and NGCP shall endeavor to adopt measures and perform its obligations under this Protocol in accordance with comparable industry standards of due diligence. Nothing herein shall make PEMC and NGCP, its employees, officers and board members liable for any actual or compensatory damages arising from the implementation of this Protocol in the absence of willful negligence or bad faith. PEMC and NGCP shall in its reasonable opinion implement remedial measures in order to manage and mitigate any errors in the MMS arising from erroneous	SECTION ~~5~~**7** XXX ~~PEMC~~ **The *Market Operator*** and ~~NGCP~~ **the *System Operator*** shall endeavor to adopt measures and perform its obligations under this Protocol in accordance with comparable industry standards of due diligence. Nothing herein shall make ~~PEMC~~ **the *Market Operator*** and ~~NGCP~~ **the *System Operator***, its employees, officers and board members liable for any actual or compensatory damages arising from the implementation of this Protocol in the absence of willful negligence or bad faith. ~~PEMC~~ **The *Market Operator*** and ~~NGCP~~ **the *System Operator*** shall in its reasonable opinion implement remedial	Re-numbered with the insertion of Sections 5 and 6 With the transition of market operations to the Independent Market Operator, it is also proposed that references to PEMC be revised to Market Operator.

[redacted]

Title	Section	Provision	Proposed Amendment	Rationale
		inputs, system failures or other related circumstances.	measures in order to manage and mitigate any errors in the MMS arising from erroneous inputs, system failures or other related circumstances.	
MODIFICATIONS AND EFFECTIVITY	SECTION 6	SECTION 6 XXX In accordance with DOE Department Circular No. DC2014-03-009, this Protocol shall be in effect upon approval by the Department of Energy and shall terminate upon Commercial Launch Date of WESM Reserve Market or upon declaration of its cessation by the DOE. The DOE may, in its discretion, revise Sections of this Protocol as the circumstances may require in consultation with Trading Participants.	SECTION ~~6~~**8** XXX In accordance with *DOE* Department Circular No. DC2014-03-009 **and DC2019-12-0018**, this Protocol shall be in effect upon approval by the *Department of Energy* and shall terminate upon Commercial Launch Date of *WESM* Reserve Market or upon declaration of its cessation by the *DOE*. The *DOE* may, in its discretion, revise Sections of this Protocol as the circumstances may require in consultation with *Trading Participants*.	The revision is being proposed to reflect that this manual is aligned with the provisions of the DOE DC2019-12-0018. Re-numbered with the insertion of Sections 5 and 6

Wholesale Electricity Spot Market

PUBLIC

WESM Manual

Protocol for Central Scheduling and Dispatch of Energy and Contracted Reserves Issue 1.0

Abstract	This document describes the processes involved in the central scheduling of energy and reserve capacities through the WESM

Document Identity:	WESM-PCSD-001
Issue No.:	1.0
Reason for Issue:	Initial Version
Approval Date:	
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Document Change History

Issue No.	Proponent	Date of Effectivity	Reason for Amendment
1.0	IEMOP	03 April 2020	Initial Version for the implementation of the enhanced market design with five (5) minute dispatch interval

Document Approval

Issue No.	RCC Approval	RCC Resolution No.	PEM Board Approval	PEMC Board Resolution No.	DOE Approval	DOE DC No.
--	NA	NA	NA	NA	02 Dec 2014	2014-12-0022
--	NA	NA	NA	NA	12 Nov 2015	2015-11-0018
1.0	01 Apr 2020	2020-06				

Reference Documents

Document ID	Document Title
DOE Department Circular No. 2014-12-0022 (02 December 2014)	"Promulgating the Protocol for the Central Scheduling and Dispatch of Energy and Contracted Reserves in Preparation for the Commercial Operation of the Wholesale Electricity Spot Market (WESM) Reserve Market"
DOE Department Circular No. 2015-11-0018 (12 November 2015)	"Declaring the Commercial Operation of the Central Scheduling and Dispatch of Energy and Contracted Reserves in the Wholesale Electricity Spot Market and Further Amendments to its Protocol in Preparation for the Eventual Commercial Operation of the WESM Reserve Market"
	WESM Rules (As amended)

Document ID	Document Title
WESM-CVC-PR	WESM Manual on Constraint Violation Coefficient and Pricing Re-runs
WESM-DP	WESM Dispatch Protocol Manual

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SECTION 1 INTRODUCTION

1.1 BACKGROUND

1.1.1 On 26 March 2013, the Department of Energy (DOE) issued DOE Department Circular DC2014-03-0009 entitled "Declaring a New Commercial Launch Date for the Wholesale Electricity Spot Market (WESM) *Reserve* Market and Directing a Central Scheduling and Dispatch of Energy and Contracted *Reserves*". The DOE DC2014-03-0009 sets forth the following directives:

(a) A central scheduling and dispatch of energy and contracted *reserve* capacities for WESM shall be in effect as part of the trial operations in order for the DOE to monitor all available generation capacity in both energy and *reserve*, and to prepare the participants for the eventual commercial operation of the WESM *Reserve* Market.

(b) The National Grid Corporation of the Philippines (NGCP) and the Philippine Electricity Market Corporation (PEMC) are hereby directed to convene and formulate the Central Scheduling and Dispatch of *Reserves* Protocol (The Protocol).

1.1.2 WESM Rules Clause 3.3.1.2 states that ancillary services may include the following without limitation

(a) The provision of sufficient *regulating reserve* to meet the fluctuations in load occurring within a trading interval
(b) The provision of sufficient *contingency reserve* to maintain power system frequency
(c) The provision of *dispatchable reserve* available to respond to a re-dispatch performed during a trading interval, on either a regular or an ad hoc basis;
(d) The provision of reactive support to guard against power system failure; and
(e) The provision of black start capability to allow restoration of power system operation after a complete failure of the power system or part of the power system.

1.1.3 Pursuant to WESM Rules Clause 2.3.5.1, a *Trading Participant* or Network Service Provider providing ancillary services shall register with the *Market Operator*.

1.1.4 *DOE*, through their Department Circular DC2015-11-0018, promulgated the implementation of the Central Scheduling and Dispatch of Energy and Contracted *Reserves*. It was effectively implemented on 22 December 2015 for the Luzon *grid*. It was then implemented in the Visayas *grid* on 07 October 2017.

1.1.5 *DOE*, through their Department Circular DC2015-10-0015, adopted Enhancements to the *WESM* Design and Operations, which included the change from a 1-hour *dispatch interval* to a 5-minute *dispatch interval*.

1.1.6 *DOE*, through their Department Circular DC2019-12-0018, defined the classification and required levels of *ancillary services* (A/S) pending the harmonization of A/S related issuances and review of the relevant provisions of the 2016 edition of the Philippine Grid *Code* (PGC 2016).

1.2 PURPOSE

1.2.1 Pursuant to the DOE Department Circular DC2014-03-0009 and DC2019-12-0018, this Protocol implements the directive for the *System Operator* and the *Market Operator* to formulate the Central Scheduling and Dispatch of *Reserves* Protocol. This Protocol shall be referred to as the "Protocol for Central Scheduling and Dispatch of Energy and Contracted *Reserves*".

1.2.2 This Protocol shall be read together with the WESM Dispatch Protocol Manual. The WESM Dispatch Protocol Manual aims to define functions and responsibilities among the *Market Operator*, the *System Operator*, and WESM Members with respect to the scheduling and dispatch of *reserve* capacities.

1.2.3 All normal and emergency procedures defined in the WESM Dispatch Protocol Manual shall apply. This Protocol shall define specific arrangements among the *Market Operator*, *System Operator*, and *Trading Participants* for a limited period during the Central Scheduling of energy and *reserves* covered by Ancillary Services Procurement Agreement (ASPA) for WESM tradable reserve categories.

1.2.4 This Protocol provides for the mechanism to centrally schedule all energy and *reserve* capacities covered by Energy Regulatory Commission (ERC)-Approved ASPA in the WESM.

1.2.5 This Protocol shall continue to be applied upon the implementation of the 5-minute *dispatch interval* unless otherwise stated by a new directive from the *DOE* and/or the *ERC*.

1.3 SCOPE

This Protocol covers specific guidelines in the scheduling and dispatch of *reserve* capacities during normal and emergency conditions during the Central Scheduling of energy and *reserves*.

1.3.1 This Protocol shall apply to the *Market Operator*, the *System Operator* and all *WESM Members*, including *intending WESM Members*, and *WESM Participants* in the electric power industry for a limited period and shall immediately cease upon New Commercial Launch Date of the WESM *Reserve* Market pursuant to the provisions of the DOE Department Circular No. DC2014-03-0009 and DC2019-12-0018.

1.3.2 Pursuant to the provisions of the DOE Department Circular No. DC2014-03-0009 and DC2019-12-0018, all scheduled ASPA Contracts shall be settled in accordance with the respective provisions of their contract and no settlement of *reserves* shall be made in the WESM

SECTION 2 DEFINITIONS, REFERENCES AND INTERPRETATION

2.1 DEFINITIONS

2.1.1 *Central Scheduling* shall refer to the activities taken prior to Commercial Launch Date of the WESM *Reserve* Market for the purpose of central dispatch of energy and *reserve* categories traded in the WESM. It intends to reflect the entire capacities in the WESM, including the *reserve* capacities contracted by NGCP, so that these can be centrally scheduled for either energy or *reserve*. No settlement of *reserves* shall be made through the WESM, but rather these shall be settled based on the respective provisions of their ASPA.

2.1.2 Unless otherwise defined in Section 2 of this document or unless the context provides otherwise, all terms used in this Protocol that are defined in the WESM Rules shall have the meaning as so defined in the WESM Rules and relevant Market Manuals.

2.1.3 *Maximum Operating Limit* refers to the maximum MW capability that a generator can obtain for a target time or dispatch interval based on its offer capacity while considering its current state, its ramp-up capability, and over-riding constraints, if there are any.

2.1.4 *Minimum Operating Limit* refers to the minimum MW capability that a generator can obtain for a target time or dispatch interval based on its offer capacity while considering its current state, its ramp-down capability, and over-riding constraints, if there are any.

2.2 REFERENCES

2.2.1 This Protocol should be read together with WESM Dispatch Protocol Manual, including Chapters 3 and 6 of the WESM Rules, whenever applicable, and the DOE Department Circular No. DC2014-03-0009 and DC2019-12-0018.

[redacted]

2.3 INTERPRETATION

2.3.1 The rules on interpretation set out in Chapter 9 of the WESM Rules, as these may be amended from time to time, shall govern the interpretation of this Protocol.

2.3.2 In the event of inconsistencies, issuances of later date and those specific to Central Scheduling shall prevail over the earlier and/or general WESM Rules, WESM Market Manuals or issuances insofar as central scheduling and dispatch are concerned.

SECTION 3 RESPONSIBILITIES

3.1 MARKET OPERATOR

3.1.1 The *Market Operator* is responsible for the administration of the Wholesale Electricity Spot Market (WESM) in accordance with the WESM Rules. Among other functions, it is responsible for determining the energy and *reserve* schedules of all facilities in the WESM, which shall then be submitted to the *System Operator* for implementation (WESM Rules section 1.3.1).

3.1.2 In administering the operations of the WESM, the *Market Operator* shall carry out its functions by performing and complying with the obligations and procedures set out in this Protocol and the WESM Dispatch Protocol Manual.

3.2 SYSTEM OPERATOR

3.2.1 The *System Operator* shall be responsible for and shall operate the power system in accordance with the WESM Rules and applicable Market Manuals, the Grid Code and the dispatch schedule communicated by the *Market Operator*. Its primary responsibilities include providing central dispatch to all generation facilities

and loads connected, directly and indirectly, to the transmission system in accordance with the dispatch schedule submitted by the *Market Operator* (WESM Rules section 1.3.3).

3.2.2 The *System Operator* shall carry out its functions by performing and complying with the procedures and obligations set out in this Protocol and the WESM Dispatch Protocol Manual.

3.2.3 The *System Operator* shall continue to contract out AS required capacities and perform the monitoring, and settlement of *reserves* pursuant to each provider's ASPA.

3.3 TRADING PARTICIPANTS AND WESM MEMBERS

3.3.1 All *Trading Participants* and other WESM members shall comply with the timetable and procedures for scheduling and dispatch that are set out in this Protocol and the WESM Dispatch Protocol Manual as such procedures apply to them.

3.3.2 They shall endeavor to adopt internal processes, systems and infrastructure, as well as protocols with their counterparties, to comply with this Protocol and the WESM Dispatch Protocol Manual.

3.3.3 Pursuant to WESM Rules clause 2.3.1.7, scheduled generation companies are required to operate their scheduled *generating units* in accordance with the scheduling and dispatch procedures described in Chapter 3 of the WESM Rules.

SECTION 4 CENTRAL SCHEDULING OF RESERVE CAPACITIES

4.1 RESERVE TYPES AND RESERVE REQUIREMENTS

4.1.1 As stated in *DOE* Department Circular DC2019-12-0018, the following *reserve* types, and its associated *reserve* requirements, shall be allocated per one-hour interval and per *grid*.

Reserve Type	Description	Reserve Requirement
Regulating reserve	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% of the total demand
Contingency reserve	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	Maximum capacity among the (a) largest synchronized *generating units*, (b) transmission element, or (c) power import from a circuit interconnection
Dispatchable reserve	Generating capacity that is not scheduled for regular energy supply, *regulating reserve*, *contingency reserve*, or *interruptible loads* not	Maximum capacity among the (a) second largest synchronized *generating units*, (b) transmission element,

Reserve Type	Description	Reserve Requirement
	scheduled for *contingency reserve*, and that are readily available for *dispatch* in order to replenish the *contingency reserve* service whenever a *generating unit* trips or a loss of a single transmission interconnection occurs	(c) power import from a circuit interconnection

4.1.2 For *regulating reserves*, the requirement shall be:

4.1.2.1 Set to 2% of the demand for upward regulation, and 2% of the demand for downward regulation

4.1.2.2 The *System Operator* may, at its option, set different *reserve* requirement levels for upward regulation and downward regulation provided that they add up to the prescribed *regulating reserve* requirement that is stated in clause 4.1.1 of this Protocol.

4.2 USE OF DAY-AHEAD PROJECTIONS AND OVER-RIDING CONSTRAINTS

4.2.1 The *Market Operator* shall provide the results of the *Day-Ahead Projection*, particularly covering the one-hour intervals of the next *trading day*, to the *System Operator* so that it can be used for determining the *MW* levels of the *reserve* requirement for each type of *reserve* in each *grid*/region.

4.2.2 The *System Operator* shall submit the level of *reserve* requirement for each type of *reserve* of each *grid*/region for a period of time, while taking into account the covered period of the *market projections* and the real-time *dispatch*, and in accordance with the *WESM* Timetable.

4.2.3 The *System Operator* may submit *over-riding constraints* to impose limits on the energy flow along specific *transmission lines* or branch groups to allow *reserve* capacities to be dispatched without over-loading.

4.2.4 At the very least, the limitation of the energy flow along specific transmission lines or branch groups shall allow additional energy flow equivalent to the upward regulation requirement.

4.2.5 The *Market Operator* shall use the Day-Ahead Ancillary Service Schedule (DAASS) provided by the *System Operator* to validate the AS schedule nominated by the *Trading Participant* and ensure that the capacities scheduled be available in the *Real-Time Dispatch* (RTD).

4.3 SUBMISSION OF GENERATION AND RESERVE OFFERS FOR MARKET PROJECTIONS

4.3.1 All *Trading Participants* shall submit their *generation offers* pursuant to the provisions of the WESM Rules Appendix A1.

4.3.2 *Trading Participants* with ERC-Approved ASPA shall submit *reserve offers* for the *one-hour intervals* of the next *trading day* prior to 1130H of the current *trading day*. The capacities of their *reserve offers* shall correspond to their ancillary nominations to the *System Operator* pursuant to the provisions of their respective ASPAs.

4.3.3 *Trading Participants* shall submit their generation and *reserve offers* consistent with the WESM Timetable for the *Day-Ahead Projections* to provide a more accurate determination of *reserve* requirements as set forth in Section 4.1 of this Protocol.

4.3.4 The *generating unit* representation of A/S providers in the Market Network Model shall be consistent with the *System Operator's* model for scheduling, monitoring, dispatching, and settlement of such A/S providers.

4.4 DAY-AHEAD SCHEDULING OF RESERVES BY THE SYSTEM OPERATOR

4.4.1 ASPA Providers shall observe the same nomination and scheduling process prescribed in their ASPA for the day-ahead scheduling of ancillary services.

4.4.2 *Trading Participants* shall ensure that they submit their *maximum available capacity* to the *WESM*, inclusive of *reserve offers* based on the approved day-ahead ancillary schedule.

4.4.3 The *System Operator* shall provide the *reserve* requirements and approved day-ahead ancillary service schedule (DAASS) to the *Market Operator*.

4.4.4 The *System Operator* shall provide the approved day-ahead ancillary service schedule (DAASS) to the relevant *Trading Participants* and ASPA providers not later than 1700H.

4.4.5 By 1900H, *Trading Participants* shall submit their updated generation and *reserve offers* for the next trading day, ensuring that the *reserve offer* submitted to the *Market Operator* shall be consistent with their respective DAASS.

4.4.6 For *Regulating reserves*, unless otherwise distinctly specified by the *System Operator*, *Trading Participants* shall submit half of its DAASS capacity for upward regulation, whereas the other half shall be submitted for downward regulation to the *Market Operator* through the Market Participant Interface (MPI).

4.5 SUBMISSION OF GENERATION AND RESERVE OFFERS FOR THE REAL-TIME DISPATCH (RTD)

4.5.1 All *Trading Participants* shall submit *generation offers* that represent their maximum available capacity pursuant to the provisions of WESM Rules Clause 3.5.5.2.

4.5.2 *Trading Participants* that were scheduled by the *System Operator* to provide a specific *reserve* service for a specific one-hour interval shall submit a *reserve offer* based on the following guidelines:

(a) Only two (2) *reserve offer* break quantities shall be submitted
(b) The first block should have a quantity (MW) of 0 MW
(c) The second block should have a quantity equivalent to the DAASS identified in Section 4.4 of this Protocol for that relevant trading interval
(d) The first and second price offer blocks shall be priced at PhP0.0/MWh only
(e) For *regulating reserves*, unless otherwise distinctly specified by the *System Operator*, *Trading Participants* shall submit half of its DAASS capacity for upward regulation, whereas the other half shall be submitted for downward regulation.

4.5.3 All *Trading Participants* shall observe the "Open Market Window" in submitting *generation* and *reserve offers* as stated in the WESM Dispatch Protocol Manual.

4.6 REVISION IN THE RESERVE REQUIREMENTS AND RE-NOMINATION OF RESERVE CAPACITIES

4.6.1 The *System Operator* may update the *reserve* requirements at any time, as may be necessary.

4.6.2 All ASPA providers may re-nominate capacities for *reserve* during the actual day of implementation subject to the AS Guidelines on re-nomination and approval process set forth by the *System Operator*.

4.6.3 Should an ASPA provider's re-nominated capacity be approved by the *System Operator*, the ASPA provider shall update its *generation* and *reserve offer* in the WESM for the relevant one-hour intervals while observing the "Open Market Window" as stated in the WESM Dispatch Protocol Manual.

4.7 REAL-TIME DISPATCH SCHEDULING AND DISPATCH IMPLEMENTATION

4.7.1 *Generating units* shall obtain *reserve* schedules based on the submitted *reserve offers* in Sections 4.5 and 4.6 of this Protocol with the objective of satisfying the *reserve* requirements by the *System Operator*.

4.7.2 If there is an insufficiency in the generation capacities to meet the *energy* and *reserve* requirements, the Market Management System shall schedule *energy* and *reserve* capacities based on the order of priority set in the *WESM* Manual on Constraint Violation Coefficients and Pricing Re-Runs.

4.7.3 If there is a thermal or an N-1 contingency constraint, the Market Management System shall schedule a generator's capacity to be scheduled for *energy* instead of being allocated for *reserve* service based on the order of priority set in the *WESM* Manual on Constraint Violation Coefficients and Pricing Re-Runs.

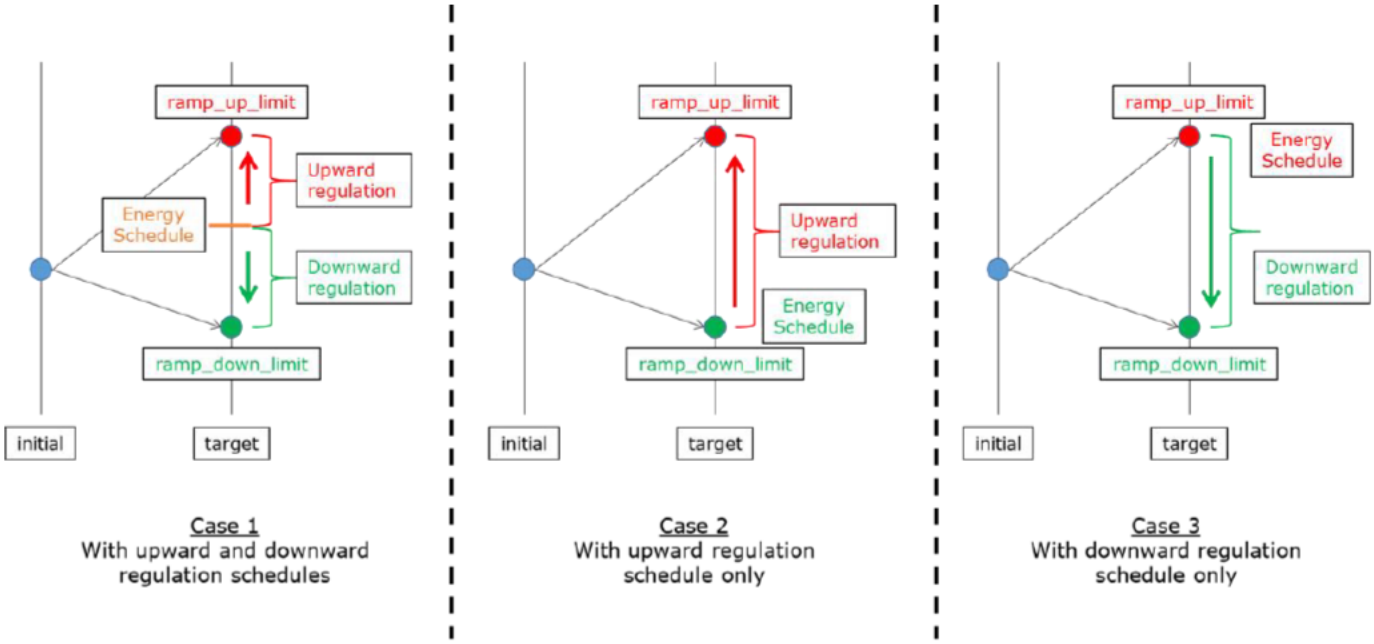
4.7.4 *Trading Participants* shall ensure that their generators are at the appropriate *loading levels* prior to the *trading intervals* where it is expected to provide *reserve* service. This is to ensure that they obtain their intended *energy* and *reserve* schedules for the Real-Time *Dispatch* (RTD) considering their ramping characteristics.

4.7.5 The Market Management System shall consider ramping constraints for upward and downward regulation services. The following equations show the constraints for energy and regulation schedules while considering ramping limitations:

4.7.5.1 [Energy] – [Downward regulation] >= [ramp_down_limit]

4.7.5.2 [Energy] + [Upward regulation] <= [ramp_up_limit]

4.7.6 With respect to the constraints shown in clause 4.7.5 of this Protocol, the following illustration shows the different cases of the joint ramping of energy and regulation (upward and downward).



4.7.7 The *System Operator* may constrain-on or constrain-off the output of *generating unit*/s in accordance with the WESM Merit Order Table (WMOT) and may designate must-run units (MRUs) in real-time if all available ancillary *reserve* capacity has been exhausted or depleted.

4.7.8 For generators that were scheduled below their respective technical Pmin for the next trading interval:

4.7.8.1 *Trading Participants* shall manage their offers appropriately for the following intervals so that such an incident may not recur.

4.7.8.2 If it is currently running or dispatched, then it should operate at its technical Pmin for that next trading interval.

4.7.8.3 If a generator is scheduled below its technical Pmin for the next trading interval, and it is currently off-line, then it should remain off-line for that next trading interval.

4.7.9 WESM Rules Clause 3.8.4 states that *Trading Participants* who are dispatched shall use reasonable endeavors to achieve a linear ramp rate over the trading interval to reach the target loading level by the end of that trading interval and within the dispatch tolerances specified in WESM Rules Clause 3.8.7. *Trading Participants* will not be required to operate in a different fashion unless it is necessary to:

(a) Respond in accordance with *reserve* or ancillary service contracts; or
(b) Respond to a direction in accordance with WESM Rules Clauses 6.3 and 6.5.

4.8 ISSUANCE OF PRICING ERROR NOTICES

4.8.1 Should the scheduling of contracted *reserve* capacities in the WESM affect the scheduling and pricing of energy capacities, the *Market Operator* may issue pricing error notice for the affected trading interval.

4.8.2 The *Market Operator* shall issue pricing errors and conduct market re-runs following existing guidelines and procedures.

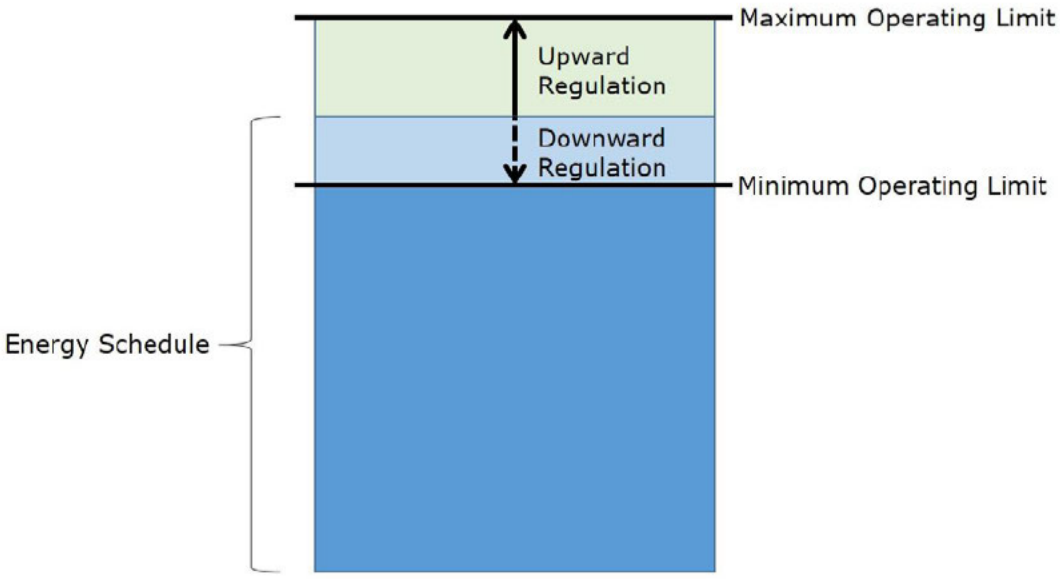
SECTION 5 SETTLEMENT OF RESERVE CAPACITIES

5.1 SETTLEMENT OF RESERVE CAPACITIES

5.1.1 All *reserve* transactions shall be settled based on their Ancillary Service Procurement Agreement (ASPA).

5.1.2 If a generator that offered its day-ahead ancillary schedule in the WESM is utilized as energy based on either the RTD schedules or on its actual utilization, then it shall be treated as an ancillary service with energy by NGCP for their ASPA settlement.

5.1.3 The energy schedule obtained by an ASPA provider while being scheduled for downward regulation in the RTD because of the head-room constraint in the *Market Dispatch Optimization Model* (MDOM) shall also be considered. The head-room constraint is imposed in the MDOM so that the energy and *regulating reserve* schedules are set in a manner that the downward and upward dispatch of the *regulating reserve* will not violate the minimum and maximum operating limits of a generator.



Head-room Constraints

Energy – Downward Regulation ≥ Minimum Operating Limit

Energy + Upward Regulation ≤ Maximum Operating Limit

5.1.4 No spot transactions on *reserve* shall be settled in the WESM during the Central Scheduling of energy and *reserves*.

5.2 OTHER SUBMISSION REQUIREMENTS

5.2.1 The Market Operator shall submit to the System Operator the RTD energy and *reserve* schedules, and the *generation* and *reserve offers* used in the RTD run, not later than 1200H of the following day.

5.2.2 Every Monday, the *System Operator* shall submit the final list of *reserve* schedules for the past week (Monday to Sunday) considering the possible revisions for the actual hour in consideration of Section 4.6 of this Protocol.

5.2.3 Not later than the 5th of the month, the *System Operator* shall submit to the *Market Operator* the A/S incidental energy of each A/S provider for each *dispatch interval* during the recently completed *billing period* (e.g., On 05 February 2020, A/S incidental energy shall be submitted by the *System Operator* for the *billing period* of January 2020).

5.2.4 The *Market Operator* shall coordinate with the *System Operator* on the validation of the accuracy of the A/S incidental energy provided in clause 5.2.3 of this Protocol. The completion of the validation between the *Market Operator* and *System Operator* shall be completed not later than the 15th of the month for the recently completed *billing period*.

5.2.5 Not later than the 18th of the month, the *Market Operator* shall submit to the *System Operator* the *WESM Trading Amount*, including the RTD schedules and *metered quantities*, of each A/S provider for the *dispatch intervals* when the A/S provider had a *reserve* schedule for the recently completed *billing period*.

SECTION 6 A/S PENALTY

The *System Operator* shall consider the data submitted by the *Market Operator* in Clause 5.2.1 when applying penalties to A/S providers in accordance with their Ancillary Service Procurement Agreement.

SECTION 7 PERFORMANCE STANDARDS

The *Market Operator* and the *System Operator* shall endeavor to adopt measures and perform its obligations under this Protocol in accordance with comparable industry standards of due diligence. Nothing herein shall make the *Market Operator* and the *System Operator*, its employees, officers and board members liable for any actual or compensatory damages arising from the implementation of this Protocol in the absence of willful negligence or bad faith. The *Market Operator* and the *System Operator* shall in

its reasonable opinion implement remedial measures in order to manage and mitigate any errors in the MMS arising from erroneous inputs, system failures or other related circumstances.

SECTION 8 MODIFICATIONS AND EFFECTIVITY

In accordance with DOE Department Circular No. DC2014-03-009 and DC2019-12-0018, this Protocol shall be in effect upon approval by the Department of Energy and shall terminate upon Commercial Launch Date of WESM *Reserve* Market or upon declaration of its cessation by the DOE.

The DOE may, in its discretion, revise Sections of this Protocol as the circumstances may require in consultation with *Trading Participants*.