



PUBLIC

WESM Manual

# Ancillary Services Monitoring Manual

Issue 1.2 | WESM-ASMM

This Market Manual sets out the procedures for the monitoring and reporting on the compliance of Ancillary Service Providers that are traded in the WESM.

Approval Date: 10-December-2024 | Publication Date: 11-December-2024

PEMC Website Posting Date: 20-December-2024 | Effective Date: 12-December-2024

## Document Change History

Issue No.	Proponent	Date of Effectivity	Reason for Amendment
0.0	WESM TWG SO Subcommittee		Provides the method and procedures in monitoring the Ancillary Services, subject to the results of the WESM Trial Operations
1.0	PEMC	30 July 2024	<p>This Market Manual establishes and sets out the following:</p> <ul style="list-style-type: none"> <li>a) Roles and Responsibilities of Market Operator, System Operator, Governance Arm, and Ancillary Services Providers;</li> <li>b) Reserve Conformance Standards and Reserve Offer Capacity Compliance Rule that will apply to Ancillary Services Providers;</li> <li>c) Ancillary Services compliance monitoring and assessment procedures; and</li> <li>d) Applicable enforcement actions for breach of the compliance rules.</li> </ul>
1.1	PEMC	30 August 2024	<p>Reflect the urgent amendments related to the following:</p> <ul style="list-style-type: none"> <li>1.) The criteria and formulas relating to compliance with the Reserve Conformance Standards (RCS);</li> <li>2.) Basis of the Ancillary Service Providers in submitting the Request for Reassessment with Notice of Claim;</li> <li>3.) Responsibilities of the Market Operator, the WESM Governance Arm, and the System Operator regarding the data provision, flagging, determination, and reporting of breach; and</li> <li>4.) Timeline of the completion, consolidation, and submission of reports/results.</li> </ul>
1.2	PEMC	11 December 2024	<p>Reflect further amendments related to the following:</p> <ul style="list-style-type: none"> <li>1.) Timeline for settlement adjustments and related Provisions</li> <li>2.) Additional technical considerations in monitoring Response Accuracy of plants on Governor Control Mode (GCM)</li> </ul> <p>Reflect Clause 5.3.7 per DOE DC 2024-06-0019 (PEMC website posting date: 20 December 2024)</p>

## Document Approval

Issue No.	RCC Approval	RCC Resolution No.	PEM Board Approval	PEM Board Resolution No.	DOE Approval	DOE Department Circular No.
0.0			07 Apr 2005	2005-07		
1.0	23 Oct 2023	2023-10	26 Oct 2023	2023-65-03	10 Jun 2024	2024-06-0019
1.1	22 Aug 2024	2024-05	28 Aug 2024	2024-75-04	N/A	N/A
1.2	06 Dec 2024	2024-08	10 Dec 2024	2024-79-01	N/A	N/A

## Reference Documents

Document ID	Document Title
	WESM Rules
WESM-DPM	Dispatch Protocol Manual
WESM-BSM	Billing and Settlement Manual
WESM-ECM	Enforcement and Compliance Manual
WESM-PM	Penalty Manual

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## SECTION 1 INTRODUCTION

### 1.1 Background

- 1.1.1 The *Department of Energy* mandated the *Market Operator* and the *WESM Governance Arm* to submit rules changes necessary for the co-optimized energy and reserve Market.<sup>1</sup> It further required the *Market Operator*, in consultation with the *System Operator* and the *Enforcement and Compliance Office*, to develop *Reserve Conformance Standards* to be set forth in the relevant *Market Manual*,<sup>2</sup> and to periodically review the same.<sup>3</sup>
- 1.1.2 The *WESM Governance Arm*, through its *Enforcement and Compliance Office*, is mandated to monitor, evaluate, assess, and enforce compliance and conformance of the *Ancillary Services Providers* with the schedule and *dispatch instructions* for energy and reserves issued by the *Market Operator* and *System Operator* and with the rule on submission of reserve offer capacity in the reserve market.<sup>4</sup>
- 1.1.3 The *Market Operator* shall implement the procedures for flagging probable breach through an automated system and shall transmit the generated data to the *Enforcement and Compliance Office* for its monitoring of compliance by the *Ancillary Services Providers* with the *Reserve Conformance Standards* and related rules.<sup>5</sup>
- 1.1.4 In conducting the compliance monitoring and enforcement of the rules, the *Enforcement and Compliance Office* shall ensure that the necessary verification or assessment of compliance or non-compliance is performed, and that due process is observed.
- 1.1.5 Moreover, the *Enforcement and Compliance Office* shall report to the *Department of Energy* and the *Energy Regulatory Commission* the monthly results of its compliance monitoring of the *Ancillary Service Providers*.<sup>6</sup>

### 1.2 Purpose and Scope

- 1.2.1 This Manual and the enforcement proceedings and actions set herein apply to the conformance of the *Ancillary Services Providers* with the rules pertaining to submission of *reserve offers* and to compliance with reserve schedules and dispatch implementation.

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<sup>1</sup> Section 10.1 and Section 11.2 of the DOE Department Circular DC2021-03-009 “*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*”

<sup>2</sup> WESM Rules Clause 3.8.7.1

<sup>3</sup> WESM Rules Clause 3.8.7.4

<sup>4</sup> Section 11.3 of the DOE Department Circular DC2021-03-009; and DOE DC2023-09-0026 “*Declaring the Commercial Operations of the Reserve Market and Providing Further Policies*.”

<sup>5</sup> WESM Rules Clause 3.8.7.3

<sup>6</sup> Section 11.3 of the DOE Department Circular DC2021-03-009

1.2.2 This Manual sets out the following –

- a. *Reserve Conformance Standards* and the related *Reserve Offer Capacity Compliance*;
- b. Procedures for identifying and checking non-conformance with the *Reserve Conformance Standards and Reserve Offer Capacity Compliance*;
- c. Procedures for monitoring and notifying the *Ancillary Services Providers* of the non-compliance by their *generating units* or *interruptible load* facilities; and
- d. Applicable enforcement actions and/or necessary *reserve amount adjustments* relative to the determination of breach of the compliance rules.

The term “*reserve amount adjustment*” as used in this Manual shall not modify the computation for the *reserve trading amount* as referred to in Clause 3.13.8 of the *WESM Rules* and shall not include matter or item that may be a subject of revisions in the Preliminary and Final Statements under Section 4.2 of the *Billing and Settlement Manual*.

- 1.2.3 This Manual applies to and is binding on all *Ancillary Services Providers*. It shall likewise apply to the *Market Operator*, the *System Operator*, and the *WESM Governance Arm* with respect to their respective obligations in effectively implementing the trading of reserves in the *WESM* through scheduling reserve and energy capacities through co-optimization, monitoring, and enforcement of the applicable rules.
- 1.2.4 This Manual also provides for the penalty system specifically applicable to the *Ancillary Services Providers*, including particularly the manner of assessment, and implementation of *enforcement proceedings* and *enforcement actions*. Except as specifically provided herein, the relevant provisions of the said *WESM Penalty Manual* and the *Enforcement and Compliance Manual* on enforcement proceedings and actions shall remain in full force and effect. The provisions of the said Manuals, to the extent practicable, shall be supplementary to this Manual, including particularly the procedures relating to the filing of Request for Reconsideration and/or Appeal, and the utilization of penalties collected.
- 1.2.5 This Manual likewise covers the determination of *reserve amount adjustments* that need to be made in the *WESM* settlements as a consequence of a *breach* or related enforcement proceedings. The provisions of the *WESM Billing and Settlement Manual*, to the extent practicable, shall be supplementary to this Manual.
- 1.2.6 A claim relating to an error in the Preliminary and Final Statements that is not connected in any way to, or arising from, the finding of *breach* or results of compliance monitoring shall be governed by the relevant provisions of the *WESM Dispute Resolution Manual* and the *WESM Billing and Settlement Manual*.



- 1.2.7 Any *enforcement action* taken under this Manual does not imply enforcement of the *Philippine Grid Code*, the *Philippine Distribution Code*, other rules and regulations which likewise govern or regulate the *WESM*, *WESM Members*, or *Ancillary Services Providers*, and therefore does not prejudice and is likewise not prejudiced by the taking of any action authorized under such codes, rules and regulations. This is notwithstanding that such codes, rules and regulations also impose sanctions on the same acts or omissions that constitute a *Breach* of the *Market Rules* or *Market Manuals*.

## SECTION 2 DEFINITIONS, REFERENCES AND INTERPRETATION

### 2.1 Definitions

- 2.1.1 All terms and abbreviations used in this Manual that are defined in the *Market Rules* shall have the same meaning as defined in the said rules.
- 2.1.2 Where italicized, the term or abbreviation shall have the definition given in the Glossary in the *Market Rules* and *Market Manuals* and in this Manual, as follows –
- a. **Ancillary Services** – those services that are necessary to support the transmission capacity and energy from resources to loads while maintaining reliable operation of the *transmission system* in accordance with good utility practice, the *Grid Code* and *Distribution Code*.
  - b. **Ancillary Services Provider** – a *Generation Company* with ancillary service capability certified by the *System Operator* or any qualified third party and registered for the *WESM Reserve Market*. It may also be a *customer* registered for the provision of *interruptible load* and certified in accordance with the *Grid Code* and *Distribution Code*.
  - c. **Annual Ancillary Services Performance Evaluation** – refers to a procedure that determines or measures the overall performance of an *Ancillary Services Provider* in terms of provision and delivery of the *ancillary services* over a period of one (1) year based on a set of criteria and guidelines developed for that purpose.
  - d. **Available Reserve Capacity** - Equal to the certified reserve capacity of a *reserve facility* for a particular reserve type less *outages*, de-rated capacity due to *technical constraints* and weather disturbance that cause damage to said *reserve facility* or that would otherwise limit its ability to inject power to the *grid* or to support the transmission capacity and energy.

- e. **Breach** – non-compliance with the *Reserve Conformance Standards* or the *Reserve Offer Capacity Compliance*, as finally determined following the enforcement proceedings set forth in this Manual.
- f. **Compliance Monitoring and Assessment Report** – refers to the report that includes the final assessment of whether a particular *Ancillary Services Provider* violated or breached the relevant *Market Rules* and/or *Market Manuals*.
- g. **Enforcement-Related Notices –**

Type of Notice	Definition	Reserve Market Compliance Applicability
<b>Notice of Breach</b>	A notice issued by the <i>Enforcement and Compliance Office</i> to the <i>Ancillary Service Providers</i> . It specifies the <i>dispatch intervals</i> in which a breach of <i>Reserve Conformance Standards</i> is identified.	<i>Reserve Conformance Standards</i>
<b>Non-Compliance Notice</b>	A notice issued by the <i>Enforcement and Compliance Office</i> to an <i>Ancillary Service Provider</i> for probable <i>Breach</i> of the <i>Reserve Offer Capacity Compliance</i> .	<i>Reserve Offer Capacity Compliance</i>
<b>Notice of Specified Penalty</b>	A notice issued by the <i>WESM Governance Arm</i> to an <i>Ancillary Service Provider</i> found in <i>Breach</i> directing the payment of financial penalty to the <i>WESM Governance Arm</i> .	<i>Reserve Conformance Standards</i> and <i>Reserve Offer Capacity Compliance</i>

- h. **Frequency-driven event** – refers to situation that activates or triggers the need for immediate response from *Ancillary Services Providers* to maintain the grid stability due to power system frequency variation.
- i. **Rated Capacity** – the full-load continuous gross capacity of a unit under the specified conditions, as calculated from the electric generator nameplate based on the rated Power Factor.
- j. **Request for Reassessment**– refers to a request of an *Ancillary Service Provider* for an independent or separate evaluation, validation, and assessment of its claim relative to a finding of breach of *Reserve Conformance Standards*.

- k. **Reserve** – *ancillary services* that are traded in the *WESM*.
- l. **Reserve Amount Adjustment** – the amount to be debited from a *WESM Member* as a line-item adjustment to or deduction from the *reserve trading amount* in connection with the final results or findings of breach of the *Reserve Conformance Standards*.
- m. **Reserve Conformance Standards** – Standards that set the criteria and procedures for determining whether the *Ancillary Service Providers* comply with their *reserve schedules*, and which are required to be set out in a *Market Manual* in accordance with WESM Rules Clause 3.8.7.
- n. **Reserve Conformance Standards Non-Compliance List** – contains a list of all intervals with breach of the *Reserve Conformance Standards* occurring within a specified billing period, including date and dispatch interval with breach, affected resource unit, reserve type and other relevant details pertaining to the non-compliance.
- o. **Reserve Facility** - a facility capable of providing *reserves*.
- p. **Reserve Offer** – a standing offer or market offer to supply reserves submitted or revised by a *Customer* or *Generation Company* in accordance with WESM Clauses 3.5.7, 3.5.8, 3.5.10 or 3.5.11.
- q. **Reserve Offer Capacity Compliance** – pertains to the rule that all certified and registered *Ancillary Service Providers* shall submit *reserve offers* up to their registered maximum reserve capability for all reserve categories, whether or not the capacities are covered by Ancillary Service Procurement Agreements (ASPAs).
- r. **Reserve Schedule** – is the resulting schedule for a particular reserve type based on the co-optimization of energy and reserve requirements of the power system produced by the *Market Dispatch Optimization Model*.
- s. **WESM Reserve Market** – a market within *WESM* that provides for a mechanism that allows trading of *ancillary services* and is integrated in the system of *WESM* that is designed to provide optimal solution for all available capacities when scheduling reserve and energy capacities through co-optimization.

## 2.2 References

This Manual shall be read in conjunction with the *Market Rules* and other *Market Manuals* approved for use in the *WESM*, including but not limited to the documents listed in the Reference Documents table of this Manual.

## 2.3 Interpretation

Unless otherwise stated in this Manual, the rules of interpretation set out in Chapter 9 of the *WESM Rules* shall also apply to this Manual.

## SECTION 3 RESPONSIBILITIES

### 3.1 Market Operator

- 3.1.1 The *Market Operator* shall establish a procedure for the timely gathering and provision of available market data to the *WESM Governance Arm* that are necessary for the monitoring of compliance with the *Reserve Conformance Standards* and the rule pertaining to *Reserve Offer Capacity Compliance*.
- 3.1.2 The *Market Operator* shall provide to the *Enforcement and Compliance Office* all the market data and information that the latter deem necessary for verification, validation, and final determination of the findings or results relative to the monitoring and enforcement of the *Reserve Conformance Standards* and the rule pertaining to *Reserve Offer Capacity Compliance*.
- 3.1.3 The *Market Operator* shall implement any notice that may be served upon it, and carry out the required action, if any, as a result of the enforcement proceedings prescribed in this Manual.
- 3.1.4 The *Market Operator* shall, on a quarterly basis, inform the *Enforcement and Compliance Office* and the *System Operator* of the status of suspension or re-application as *Ancillary Services Provider* of the entity that has previously been suspended or deregistered as such.

### 3.2 System Operator

- 3.2.1 The *System Operator* shall submit to the *Market Operator* data and reports that are necessary in initially determining occurrence of probable breach.
- 3.2.2 The *System Operator* shall provide to the *Enforcement and Compliance Office* all the market data and information that the latter deem necessary for verification, validation, and final determination of the findings or results relative to the monitoring and enforcement of the *Reserve Conformance Standards* and the rule pertaining to *Reserve Offer Capacity Compliance*.
- 3.2.3 The *System Operator* shall implement any notice that may be served upon it, and carry out the required action, if any, as a result of the enforcement proceedings prescribed in this Manual.
- 3.2.4 The *System Operator* shall, for monitoring purposes, inform the *Market Operator* and the *Enforcement and Compliance Office* of any technical ground or reason for disqualification of an *Ancillary Service Provider*, such as but not limited to failure to pass the regular *Ancillary Services* certification test every two (2) years or failure to resolve the technical issues required for re-certification.

### 3.3 WESM Governance Arm

The *Enforcement and Compliance Office* shall –

- 3.3.1 Monitor the compliance of *Ancillary Service Providers* and impose the specified penalties based on the result of monitoring and assessment in accordance with Clause 7.2.5.2 of the *WESM Rules*, and this *Market Manual*.
- 3.3.2 Develop or establish a monitoring tool, system, and procedures that would readily employ and provide practical application in terms of data migration from the *Market Operator* or *System Operator*, notification to concerned *Ancillary Service Providers* and user interface, and recalculation of initial results pertaining to possible non-compliance with the *Reserve Conformance Standards* and *Reserve Offer Capacity Compliance*.
- 3.3.3 Coordinate with the *Market Operator* and the *System Operator*, as may be deemed necessary, to ensure that all the data and information needed for monitoring and assessment – and upon which the findings shall be based – are correct and complete.
- 3.3.4 Submit the reports required under this Manual to the *Energy Regulatory Commission*, the *Department of Energy*, the *PEM Board*, and the *Compliance Committee*.
- 3.3.5 Implement all other notices, resolutions, or decisions, as the case may be, pursuant to this Manual, and shall have custody of all notices, reports, and records created and issued pursuant to this Manual.

The President of the *WESM Governance Arm* –

- 3.3.6 Sign all notices pertaining to penalties and to other enforcement actions that are required to be issued under this Manual.
- 3.3.7 Upon signing of the *Notice of Specified Penalty*, direct or authorize the billing and collection of the penalty from the *Ancillary Service Providers* within the timeline set forth in Section 8.2.4 of this Manual.

### 3.4 Ancillary Services Provider

- 3.4.1 *Ancillary Services Providers* shall submit to the *System Operator* the following data for purposes of monitoring compliance with the *Reserve Conformance Standards*.
  - a. Generator mode of operations
  - b. Deadband setting
  - c. Speed droop characteristic

- 3.4.2 *Ancillary Services Providers* shall comply with the *Reserve Conformance Standards* and the rule on *Reserve Offer Capacity Compliance* as set forth in this Manual and related *Market Manuals*.
- 3.4.3 *Ancillary Services Providers* shall coordinate with the *Enforcement and Compliance Office* for matters, data, or information necessary for the latter to establish, validate, and verify the incidents or circumstances relating to the non-compliance with the *Reserve Conformance Standards* and the rule on *Reserve Offer Capacity Compliance*.
- 3.4.4 An *Ancillary Services Provider* that is served a notice, resolution, or decision pursuant to this Manual shall faithfully and timely comply with the requirements or directives thereunder, including but not limited to the payment of financial penalties, taking of remedial actions or measures and compliance with other directives. Failure to comply with such requirements or directives shall be subject to additional *penalties* pursuant to Section 8.4 of this Manual.

### **3.5 Other Service Providers**

Other service providers in the WESM, including but not limited to the *Network Service Providers* and the *Metering Service Providers*, shall faithfully and timely implement any action or measure required of them under any notice that is issued and served pursuant to this Manual.

## SECTION 4 RESERVE OFFER CAPACITY COMPLIANCE

### 4.1 Overview

- 4.1.1 This Section applies to and is binding on all *Ancillary Services Providers*. By having been certified as an *Ancillary Services Provider* by the *System Operator* or any qualified third-party capability testing entity accredited by the *Energy Regulatory Commission*, and by being registered in the *WESM* as *Ancillary Services Provider*, an *Ancillary Services Provider* is bound to comply with the *Market Rules* and *Market Manuals*.
- 4.1.2 All *Generation Companies* registered in the *WESM* shall offer their 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 the reserve capacities, as certified by the *System Operator* or any other entity duly designated to conduct testing and certification of ancillary services capability of generating load and facilities, as applicable.<sup>7</sup>
- 4.1.3 Each *Generation Company* registered as an *Ancillary Services Provider* shall submit a standing *reserve offer* for each of its relevant *reserve facilities* in a *reserve region* for each *dispatch interval* for each day of the week in accordance with the *timetable*. The standing *reserve offer* shall apply until revised or updated by the said *Ancillary Services Provider*.<sup>8</sup>
- 4.1.4 Each *Customer* registered as an *Ancillary Services Provider* in respect of a *reserve facility* in a particular *reserve region* may likewise submit a standing *reserve offer* for each of its *interruptible load facilities* in respect of that *reserve region* for each *dispatch interval* for each day of the week in accordance with the *timetable*.<sup>9</sup>

### 4.2 Reserve Offer Submission

- 4.2.1 Subject to the existing rule on the submission of available capacity for energy under Clause 3.5.5 of the *WESM Rules*, an *Ancillary Services Provider* shall submit offers for each of its *reserve facility* equivalent to the certified reserve capacity for all types of reserve categories as registered in the *WESM*, whether or not the capacities are covered by an ancillary services procurement agreement with the *System Operator*. For instance, if a generating unit has a registered capacity of 110MW but is certified and registered in the *WESM* as having a *regulating reserve* capacity of 100MW, a *contingency reserve* capacity of 100MW, and a *dispatchable reserve* of 105MW, the *Ancillary Services Provider* should submit energy and reserve offers as follows:

<sup>7</sup> DOE DC2021-03-0009, "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".

<sup>8</sup> Clause 3.5.7.2 of the *WESM Rules*

<sup>9</sup> Clause 3.5.8.2 of the *WESM Rules*



(A) Energy Offer	(B) Reserve Offer		
	Regulating Reserve	Contingency Reserve	Dispatchable Reserve
110MW	100MW	100MW	105MW

- 4.2.2 An *Ancillary Services Provider* shall notify the *Enforcement and Compliance Office* of any circumstances which may prevent it from providing *ancillary services* in any *dispatch interval* of any *trading day* in a particular *week-ahead market horizon*. Such notice shall be accompanied by supporting documents or records and shall be submitted within five (5) *business days* from the occurrence of the event or incident.
- 4.2.3 The *Ancillary Services Provider* shall provide a reason or explanation whenever the submitted *reserve offers* are cancelled or are less than the certified capacity of its *reserve facility*.
- 4.2.4 An *Ancillary Services Provider* that fails to submit the *available reserve capacity* in consideration of Section 4.2.2 above shall constitute a breach of the *Reserve Offer Capacity Compliance*.
- 4.2.5 The submission of the report, data, reasons, and explanations pursuant to the preceding sections shall also serve as compliance by the *Ancillary Services Provider* with its reporting obligation under Section 6.3.1 of this Manual and Section 7.2.2.2 of the *WESM Rules*.
- 4.2.6 The *reserve offers* shall be submitted through the market participant interface of the *Market Management System* in accordance with the *WESM timetable*, procedures and requirements set forth in the *Dispatch Protocol Manual*, including but not limited to, format, content, data inputs and information requirements.

### 4.3 Review of the Rule on Reserve Offer Capacity Compliance

The *Market Operator*, in consultation with the *System Operator*, the *WESM Governance Arm*, and the *WESM Members* registered as *Ancillary Services Providers*, shall review the *Reserve Offer Capacity Compliance* and the procedures set out in this Manual annually, or as may be necessary, and shall provide appropriate recommendation to the *Department of Energy*.

## SECTION 5 RESERVE CONFORMANCE STANDARDS

### 5.1 Background

- 5.1.1 This Section applies to *Ancillary Services Providers* scheduled to provide a specific *reserve type* in any *dispatch interval*.
- 5.1.2 In view of the integration of trading of *ancillary services* in the WESM, it is expected that a harmonized *reserve conformance standards* be established for all *Ancillary Services Providers* whether their reserve capacities are contracted by the *System Operator* or are traded in the spot market.
- 5.1.3 All *Ancillary Services Providers* shall ensure adequate and timely response during specific *frequency-driven events* or *dispatch instructions* that may be required for each specific reserve type.
- 5.1.4 *Reserve facilities* scheduled to provide *regulating reserve* or *contingency reserve* shall respond to *frequency-driven events* or comply with any of the following:
- a. Reaction through Governor Control Mode (GCM);
  - b. Commands via Automatic Generation Control (AGC); or
  - c. *Dispatch instructions* from the *System Operator*.
- 5.1.5 *Reserve facilities* scheduled to provide *dispatchable reserve* shall respond to *dispatch instructions* provided by the *System Operator*.
- 5.1.6 The accuracy and timeliness of the response provided by *reserve facilities* shall be monitored for each *billing period* and/or for each *dispatch interval* based on the considerations set out in the succeeding sections.

### 5.2 Provision of Data for Monitoring and Reporting

- 5.2.1 The *System Operator* and the *Market Operator* shall submit to the *WESM Governance Arm* data and reports that may be necessary in initially determining probable breach, such as but not limited to the following:

Data	Timeline of Provision	Source
Generator mode of operation (e.g., Automatic Generation Control (AGC), Governor Control Mode (GCM), Manual Dispatch Instruction)	D+1 <sup>10</sup>	Market Operator
Deadband settings (Based on certification)	As necessary	Market Operator

<sup>10</sup> "D" – Day; "D+1" – Next Day

Data	Timeline of Provision	Source
Speed droop characteristic (Based on certification)	As necessary	Market Operator
Rated Capacity (Based on declared/tested capacity)	As necessary	System Operator
Generator Status	D+1	System Operator
Dispatch instructions	D+1	System Operator
Outages	D+1	System Operator
Power System Frequency	D+1	System Operator
Desired MW/AGC Command	D+1	System Operator
Certified Capacity (Based on Certification)	As necessary	Market Operator
Day-Ahead Ancillary Service Schedule (DAASS)	D-1	System Operator
BCQ-SO	D+1	System Operator
Final BCQ-MO	Every 15th of the following month	Market Operator
Actual MW Output	D+1	System Operator
Reserve Type (Based on certification)	As necessary	Market Operator

For other data or reports not enumerated in the foregoing table, the *Market Operator*, the *WESM Governance Arm*, and the *System Operator* shall, from time to time, agree on the manner and schedule of submission.

### 5.3 Reserve Conformance Standards for Regulating Reserves

- 5.3.1 *Reserve facilities* scheduled to provide *regulating reserve* while operating on GCM shall conform to the standards set out in Clause 5.66 of this *Market Manual*.
- 5.3.2 *Reserve facilities* scheduled to provide *regulating reserve* while receiving AGC commands shall conform to the standards set in Clause 5.77 of this *Market Manual*.
- 5.3.3 *Reserve facilities* scheduled to provide *regulating reserve* shall also ensure that they meet the following requirements based on the certified settings during the relevant *dispatch interval*.
- Deadband is 0 Hz to +/- 0.15 Hz if operating on GCM;
  - Speed droop characteristic is 5% or lower and 1% or lower for *Battery Energy Storage System* if operating on GCM; and
  - Provision of reserve is sustainable for the entire *dispatch interval*.
- 5.3.4 A *reserve facility* providing *regulating reserve* that fails to maintain an average response accuracy as set out in Sections 5.6.1 or an average response time as set out in Section 5.6.3 or Percentage (%) of Compliance as set out in Section 5.7.1 in any

*dispatch interval* during the *settlement interval* shall be flagged as non-compliant. Once flagged as non-compliant, a *reserve facility* will be assessed further based on the following:

- a) Compliance with the response accuracy for each *dispatch interval*; and
- b) Compliance with the response time for each *dispatch interval*.

5.3.5 Considering the provisions of Section **Error! Reference source not found.**, the relevant *reserve facility* that fails to meet either: (a) the required response accuracy of at least 80% or 90% or (b) the required response time of not more than five (5) or twenty-five (25) seconds, as applicable in accordance with Sections 5.6 and 5.7 at any *dispatch interval* will be considered breach of the *reserve conformance standards* for *regulating reserves* for that *dispatch interval*.

5.3.6 Notwithstanding standards set forth in Sections 5.3.4 and 5.3.5, a *reserve facility* that fails to comply with any of the following: (a) the required deadband setting, (b) speed droop characteristics, and (c) sustainability requirement as prescribed under Section 5.3.3 for any *dispatch interval* shall also be considered breach of the *reserve conformance standards* for *regulating reserves* for that *dispatch interval*.

5.3.7 When a *frequency-driven event* occurs during the provision of regulating reserve ancillary service, the count of breach for response accuracy shall begin from the *dispatch interval* in which the frequency event occurred and shall continue until the *dispatch interval* in which the frequency event ends, provided that the relevant intervals have a reserve schedule.

If multiple *frequency-driven events* occur within a single *dispatch interval*, all instances within the interval shall be assessed in accordance with this Section. A *breach* in any or all of the events which occurred within a *dispatch interval* shall be counted as one (1) *breach*.

5.3.8 When a *frequency-driven event* occurs during the provision of regulating reserve ancillary service, the count of breach for response time shall be counted only in the *dispatch interval* that the frequency event started.

#### 5.4 Reserve Conformance Standards for Contingency Reserves

5.4.1 *Reserve facilities* scheduled to provide *contingency reserve* while operating on GCM shall conform to the standards set in Clause 5.6 of this *Market Manual*.

5.4.2 *Reserve facilities* scheduled to provide *contingency reserve* while receiving AGC commands shall conform to the standards set in Clause 5.7 of this *Market Manual*.

- 5.4.3 *Reserve facilities* scheduled to provide *contingency reserve* receiving *dispatch instructions* from the *System Operator* manually are expected to comply within ten (10) minutes from issuance of the *dispatch instructions*.
- 5.4.4 *Reserve facilities* scheduled to provide *contingency reserve* shall also ensure that they meet the following requirements based on the certified settings during the relevant *dispatch interval*:
- a. Deadband is -0.15 Hz to -0.30 Hz if operating on GCM;
  - b. Speed droop characteristic is 5% or lower and 1% or lower for *Battery Energy Storage System*, if operating on GCM; and
  - c. Provision of reserve is sustainable for the entire *dispatch interval*.
- 5.4.5 A *reserve facility* providing *contingency reserve* that fails to maintain an average response accuracy as set out in Section 5.6.1 or an average response time as set out in Section 5.6.3 or Percentage (%) of Compliance as set out in Section 5.7.1 for the entire *settlement interval* shall be flagged as non-compliant. Once flagged as non-compliant, a *reserve facility* will be assessed further based on the following:
- a) Compliance with the response accuracy for each *dispatch interval*; and
  - b) Compliance with the response time for each *dispatch interval*.
- 5.4.6 Considering the provisions of Section **Error! Reference source not found.**, the relevant *reserve facility* that fails to meet either: (a) the required response accuracy of at least 80% or 90% or (b) the required response time of not more than five (5) or twenty-five (25) seconds, as applicable in accordance with Section 5.6 and Section 5.7 at any *dispatch interval* will be considered *breach* of the *reserve conformance standards* for *contingency reserves* for that *dispatch interval*.
- 5.4.7 Notwithstanding standards set forth in Sections 5.4.5 and 5.4.6, a *reserve facility* that fails to comply with any of the following: (a) the required deadband setting, (b) speed droop characteristics, and (c) sustainability requirement as prescribed under Section 5.4.4 for any *dispatch interval* shall also be considered *breach* of the *reserve conformance standards* for *contingency reserves* for that *dispatch interval*.
- 5.4.8 When a *frequency-driven event* occurs during the provision of contingency reserve ancillary service, the count of *breach* for response accuracy shall begin from the *dispatch interval* in which the frequency event occurred and shall continue until the *dispatch interval* in which frequency event ends, provided that the relevant intervals have a reserve schedule.

If multiple *frequency-driven events* occur within a single *dispatch interval*, all instances within the interval shall be assessed in accordance with this Section. A *breach* in any or all of the events which occurred within a *dispatch interval* shall be counted as one (1) *breach*.

- 5.4.9 When a *frequency-driven event* occurs during the provision of contingency reserve ancillary service, the count of breach for response time shall be counted only in the *dispatch interval* that the frequency event started.

## 5.5 Reserve Conformance Standards for Dispatchable Reserves

- 5.5.1 *Reserve facilities* scheduled to provide *dispatchable reserve* must be offline, unless there is a *dispatch instruction* from the *System Operator*, or it was scheduled for energy *dispatch* in the *WESM*.
- 5.5.2 *Reserve facilities* scheduled to provide *dispatchable reserve* shall synchronize within fifteen (15) minutes from receipt of the *dispatch instructions* from the *System Operator*.
- 5.5.3 After synchronization, the *dispatchable reserve facility* shall deliver the MW capacity instructed by the *System Operator* within fifteen (15) minutes from synchronization and shall generate within the upper and lower dispatch thresholds of +/-1% of the dispatch instruction, or +/- 0.5 MW, whichever is higher. The facility shall sustain and maintain generation in accordance with the active instruction and any succeeding instructions from the *System Operator* until instructed to shut down<sup>11</sup>.
- 5.5.4 A *dispatchable reserve facility* that fails to comply with the real-time *dispatch instruction* of the *System Operator* based on the *Reserve Schedule* due to an outage or unavailability shall be considered in breach of the *reserve conformance standards* for the *dispatch interval* that the non-compliance occurs and in all preceding intervals of the same *trading day* that have *Dispatchable Reserve Schedules*.
- 5.5.5 A *reserve facility* that fails to comply with the provisions set out in Sections 5.5.1, 5.5.2, or 5.5.3 at any *dispatch interval* shall be considered in breach of the *reserve conformance standards* for *dispatchable reserves* for that *dispatch interval*.

## 5.6 Measuring Reserve Response Compliance of Generators on Governor Control Mode

- 5.6.1 A *reserve facility* responding to a *frequency-driven event* through GCM shall maintain an average response accuracy of at least 80% for the relevant settlement interval.

For purposes of averaging under Sections 5.3.4 and 5.4.5, the response accuracy for a *dispatch interval* shall be capped at 120%

- 5.6.2 A *reserve facility's* response accuracy via GCM shall be calculated as follows<sup>12</sup>.

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<sup>11</sup> See Illustration 1 of Appendix IV

<sup>12</sup> See Illustration 2 of Appendix IV

$$\text{Response Accuracy} = \frac{\text{Actual MW Response Capacity}}{\text{Expected MW Response Capacity}} \times 100\%$$

a. When System Frequency falls below the lower deadband:

Where:

Actual MW Response Capacity

= Highest Actual MW Output – MW Output Prior to Frequency-Driven Event

Where: The Highest Actual MW Output is the value obtained 20 seconds after the Lowest frequency that occurred during the Frequency-Driven Event

Frequency Change

= Frequency Prior to Frequency-Driven Event – Lowest Frequency During Frequency-Driven Event

Frequency Prior to Frequency-Driven Event

= Nominal Frequency – Deadband Setting

b. When System Frequency breaches the upper deadband:

Actual MW Response Capacity

= Lowest Actual MW Output – MW Output Prior to Frequency-Driven Event

Where: The Lowest Actual MW Output is the value obtained 20 seconds after the highest frequency that occurred during the Frequency-Driven Event

Frequency Change

= Frequency Prior to Frequency-Driven Event – Highest Frequency During Frequency-Driven Event

Expected MW Response Capacity

= Static Gain x Frequency Change

$$\text{Static Gain} = \frac{\text{Rated Capacity}}{\text{Droop Setting} \times \text{Nominal Frequency}} \times 100\%$$



For purposes of computing static gain, the determination of *rated capacity* shall be established by reference to: (a) the rated capacity as appearing in WESM registration records; or (b) the declared capacity from which the reserve facility was tested during the ancillary services certification. In the event of any discrepancy, the latter shall prevail for this purpose.

If the system frequency breaches the upper deadband threshold, the reserve facility needs to react by decreasing generation to correct the frequency and vice versa. In this case, the Actual MW Response Capacity shall be calculated as the difference between the Highest or Lowest Actual MW Output, as the case may be, and the MW Output prior to the Frequency-Driven Event.

The event will qualify as *Frequency-Driven Event*, for this purpose, if:

- a. the event lasts for more than five (5) seconds; and
- b. the frequency deviation exceeds the deadband setting by 0.02 Hz for conventional generating units and 0.01 Hz for battery energy storage systems.

In cases where the Expected MW Response Capacity, as calculated based on the formula, exceeds the *Reserve Schedule*, reserve facilities are authorized to operate within their scheduled reserves for ancillary service provision, subject to *System Operator's* re-dispatch instructions<sup>13</sup>. In such instances, the *System Operator* shall include details of re-dispatch instructions in its dispatch instruction report.

- 5.6.3 A *reserve facility* responding to a *frequency-driven event* or to a *dispatch instruction*, while on GCM shall have an average response time of not more than five (5) seconds for the relevant *settlement interval*.

## 5.7 Measuring Reserve Response Compliance of Generators on Automatic Generation Control

- 5.7.1 A *reserve facility* responding to a *frequency-driven event* or to *dispatch instructions*, through commands received from the *System Operator's* Energy Management System (EMS) via AGC shall comply to at least 90% of such AGC commands for the relevant *settlement interval*<sup>14</sup>.

Percentage (%) of Compliance of a reserve facility/unit operating on AGC is given below:

$$\% \text{ Compliance} = \frac{\text{No. of Compliant AGC Commands}}{\text{No. of AGC Commands}} \times 100\%$$

- 5.7.2 A *reserve facility* is deemed compliant to an AGC command if the following conditions are met:

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<sup>13</sup> See Illustration 3 of Appendix IV

<sup>14</sup> See Illustration 4 of Appendix IV



5.7.2.1 The Actual Generation of the *reserve facility* shall reach at least 63% of the Desired Generation within 25 seconds from the time the AGC command is issued.

5.7.2.2 Additionally, the Actual Generation of the reserve facility shall reach at least 90% but shall not exceed 130% of the Desired Generation or  $\pm 0.5$  MW from the Desired Generation, (whichever requirement is the higher threshold) within 32 seconds from the time AGC command is issued. The facility shall sustain and maintain generation throughout the command in such range set out herein.

## 5.8 Summary Table of Reserve Conformance Standards for Each Reserve Type<sup>15</sup>

For Regulating Reserves		
Response Accuracy	On GCM	At least 80%
	On AGC	At least 90%
Response Time	On GCM	not more than 5 seconds
	On AGC	At least 63% of the desired generation within 25 seconds; and at least 90% and not more than 130% of the desired generation or 0.5 MW tolerance whichever is higher within 32 seconds
Deadband Setting on GCM	0 Hz to +/-0.15Hz or as per certification	
Speed droop characteristic on GCM	5% or lower; and 1% or lower for BESS	
Sustainability	for the entire <i>dispatch interval</i>	

For Contingency Reserves		
Response Accuracy	On GCM	At least 80%
	On AGC	At least 90%
Response Time	On GCM	not more than 5 seconds
	On AGC	At least 63% of the desired generation within 25 seconds; and at least 90% and not more than 130% of the desired generation or 0.5 MW tolerance whichever is higher within 32 seconds
Deadband Setting on GCM	- 0.15 Hz to - 0.30 Hz or as per certification	

<sup>15</sup> Adopted from the parameters being implemented by the *System Operator* for its own compliance monitoring of contracted *Ancillary Service Providers*

<b>Speed droop characteristic on GCM</b>	5% or lower; and 1% or lower (for BESS)
<b>Sustainability</b>	for the entire <i>dispatch interval</i>
<b>For Dispatchable Reserves</b>	
<b>Status</b>	must be offline unless there is a <i>dispatch instruction</i> from the <i>System Operator</i> , or it was scheduled for energy <i>dispatch</i> in the <i>WESM</i> .
<b>Synchronization</b>	Within 15 minutes upon advice from the <i>System Operator</i>
<b>Sustainability</b>	Must sustain the upper and lower threshold of +/-1% of the <i>dispatch instruction</i> or +/- 0.5 MW whichever is higher, within 15 minutes from synchronization

## 5.9 Review of the Reserve Conformance Standards

The *Market Operator*, in consultation with the *System Operator*, the *WESM Governance Arm* and the *WESM Members* registered as *Ancillary Services Providers* shall review the *Reserve Conformance Standards* and the procedures set out in this Manual annually, or as may be necessary, and shall provide appropriate recommendation to the *Department of Energy*.

## SECTION 6 MONITORING OF COMPLIANCE WITH RESERVE OFFER CAPACITY COMPLIANCE

### 6.1 Monitoring of Reserve Offer Capacity Compliance

- 6.1.1 The *Enforcement and Compliance Office* shall, based on the data or information received from the *Market Operator* or *System Operator*, determine, evaluate, and assess the compliance of the *Ancillary Services Providers* with the *Reserve Offer Capacity Compliance* set forth in Section 4 hereof.
- 6.1.2 If the *Enforcement and Compliance Office* finds the data or information inadequate or incomplete as would prevent it from proceeding with any further actions as set out in the succeeding sections, it shall immediately coordinate with the *Market Operator* or *System Operator* to ensure that the data or information to be used in the enforcement proceedings are complete and correct.

### 6.2 Issuance of Non-compliance Notice

- 6.2.1 If the *Enforcement and Compliance Office* determines that there is a probable breach of the *Reserve Offer Capacity Compliance*, it shall issue a *Non-Compliance Notice* to the concerned *Ancillary Service Providers* through their respective *WESM Compliance Officers*. The *Notice of Non-Compliance* shall be issued on a weekly basis or in such frequency as may be deemed practicable taking into account the availability and completeness of the data and information obtained from the *Market Operator* or the *System Operator*.
- 6.2.2 The *Non-Compliance Notice* is not yet conclusive until the final determination of the breach by the *Enforcement and Compliance Office* following the procedures set forth in Sections 6.3 of this Manual.

### 6.3 Reply, Validation and Assessment

- 6.3.1 Within five (5) *business days* from receipt of the *Non-Compliance Notice*, the concerned *Ancillary Service Provider* shall submit its reply thereto including the supporting documents that would substantiate the explanation provided in the said reply. The *Ancillary Service Provider* may, in coordination with the *Enforcement and Compliance Office*, be allowed to submit supporting documents before the period specified for the completion of assessment under Section 6.3.2.

The *Enforcement and Compliance Office* shall, for this purpose, establish a detailed process or procedure of compliance monitoring and assessment and prescribe a reply format or template that may be accomplished by the *Ancillary Services Provider* as part of the monitoring process as well as the facility through which the reply and supporting documents shall be submitted.

6.3.2 The *Enforcement and Compliance Office* shall assess, validate, and verify the responses and documents submitted by the *Ancillary Services Provider*. It may also consult the *Market Operator*, the *System Operator*, or the *Metering Service Provider*, as necessary, to ascertain the truthfulness of the claim or allegations of the *Ancillary Services Provider*. The *Enforcement and Compliance Office* shall perform the recalculation, as may be appropriate.

The assessment, validation, and verification of the responses referred to in the preceding paragraph shall be consolidated to cover one *billing period*. It shall be completed within fifteen (15) *business days* from the end of the calendar month of the covered monitoring period regardless of whether a reply or confirmation is submitted by the concerned *Ancillary Services Provider*. For instance, the assessment for the August *Billing Period* shall be completed on or before 15 September.

#### **6.4 Compliance Monitoring and Assessment Reports**

6.4.1 The *Enforcement and Compliance Office* shall issue the monthly *Compliance Monitoring and Assessment Report* to each *Ancillary Services Provider* that has been issued a *Non-Compliance Notice*, which report shall:

- a. contain or provide, among others, a finding whether the concerned *Ancillary Service Provider* is compliant with the *Market Rules* or *Market Manuals*;
- b. contain the penalty amount as computed under Section 8;
- c. be issued to the concerned *Ancillary Services Provider* with respect to each *reserve facility* or plant that is subject of monitoring, as applicable; and
- d. be issued within five (5) *business days* from completion of validation and assessment as prescribed under Section 6.3.2.

#### **6.5 Request for Reconsideration or Appeal and Implementation of Enforcement Actions**

The filing of any request for reconsideration or appeal concerning compliance with the *Reserve Offer Capacity Compliance* as well as the procedure for the implementation of enforcement actions shall be governed by the relevant provisions of the *WESM Enforcement and Compliance Manual*.

#### **6.6 Reporting Results**

6.6.1 The *Enforcement and Compliance Office* shall submit a consolidated monthly report to the *Department of Energy*, *Energy Regulatory Commission*, *PEM Board*, and *Compliance Committee*, containing the status of the compliance of each *Ancillary Service Provider* with the *Reserve Offer Capacity Compliance*.

## SECTION 7 MONITORING OF COMPLIANCE WITH RESERVE CONFORMANCE STANDARDS

### 7.1 Monitoring of Reserve Conformance Standards

- 7.1.1 The *Enforcement and Compliance Office* shall, based on the data or information received from the *Market Operator* or *System Operator*, determine, evaluate, and assess the compliance of the *Ancillary Services Providers* with the *Reserve Conformance Standards* set forth in Section 5 hereof.
- 7.1.2 In case of inadequacy of the data or information, upon which the flagging or initial determination of breach is based, the provision of Section 6.1.2 shall apply.

### 7.2 Flagging of Probable Breach of Reserve Conformance Standards

- 7.2.1 The *Enforcement and Compliance Office* shall, through a dedicated monitoring facility, flag a breach of the *Reserve Conformance Standards* by the *Ancillary Services Provider* based on the parameters set in Section 5, and shall notify *Ancillary Services Provider*, of the same.
- 7.2.2 If the performance of a *reserve facility* of an *Ancillary Services Provider* affects both its compliance under the *Ancillary Services Procurement Agreement* and the *Reserve Market*, the *System Operator* and the *Market Operator* shall jointly determine the extent of breach committed and be able to allocate or determine which part of the reserve amount adjustments and penalty corresponds to the contractual obligation and to the *reserve market* compliance.
- 7.2.3 If it becomes impossible to allocate the exact amount for settlement adjustments or penalty in accordance with the preceding paragraph, by reason of indivisibility of the breach committed by *Ancillary Services Provider*, the same shall be determined based on the scheduled capacity for reserves under the *Ancillary Services Procurement Agreement* and the *Reserve Market*.

### 7.3 Validation, Assessment, and Reporting Results

- 7.3.1 The *Enforcement and Compliance Office* shall conduct daily validations, verifications, and assessments of *Ancillary Service Providers'* compliance, utilizing submissions from said *Ancillary Service Providers*, data and information from the *Market Operator*, *System Operator*, and other relevant agencies or entities.
- 7.3.2 The *Enforcement and Compliance Office* may also request additional documents or information from *Ancillary Service Providers*, to clarify or substantiate their explanations or reasons, as necessary. For this purpose, the *Enforcement and*

*Compliance Office* may establish and require use of a designated reply format, template, or tool to ensure accuracy, completeness, and consistency of responses.

- 7.3.3 The *Enforcement and Compliance Office* shall complete its validation and assessment and shall generate the results of the monitoring of the *Reserve Conformance Standards* at the end of the calendar month following the covered monitoring period, unless force majeure events necessitate an extension to accomplish the monitoring results.
- 7.3.4 The *Ancillary Service Providers* shall be notified within the period specified in Section 7.3.3 of any non-compliance with *Reserve Conformance Standards* for their respective reserve facilities through the issuance of a *Notice of Breach*.
- 7.3.5 The *Notice of Breach* of the *Reserve Conformance Standards* shall contain, at a minimum, the specific intervals, resource unit/s, the type of reserve that is found in breach, and the grounds for breach determination.

#### **7.4 Request for Reassessment by Ancillary Services Providers**

- 7.4.1 The *Ancillary Service Provider* may file a *Request for Reassessment* with the *Enforcement and Compliance Office* not later than ten (10) calendar days from receipt of the *Notice of Breach* from the *Enforcement and Compliance Office*.

The *Request for Reassessment* shall be filed online or through a facility that may be developed by the *Enforcement and Compliance Office* for this purpose.

- 7.4.2 The *Request for Reassessment* shall indicate the following:
- a. Date of receipt of the *Notice of Breach* from the *Enforcement and Compliance Office*;
  - b. The specific intervals, resource unit/s, and the type of reserve covered by the request;
  - c. The ground/s for reassessment;
  - d. The correct data or value in case the ground for reassessment includes data variance or discrepancies, including the source of the data to be used in the recalculation; and
  - e. Data, information, records, or documents to support the request or claim.
- 7.4.3 The *Request for Reassessment* shall be accompanied by a certification under oath attesting to the authenticity of the documents submitted in relation thereto. A scanned copy of the notarized certification may be submitted in lieu of the printed copy as an integral part of the request. However, the *Enforcement and Compliance Office* may, as it deems necessary, request a printed copy of such notarized certification or any documents filed in relation thereto.

The *Enforcement and Compliance Office* shall, for this purpose, establish or prescribe a format or template that may be accomplished by the *Ancillary Services Provider* in filing the said request.

- 7.4.4 The filing of *Request for Reassessment* beyond the period allowed under Section 7.4.1 or the failure to comply with the requirements set out in Section 7.4.2 and 7.4.3 shall cause the outright dismissal thereof.

## **7.5 Revalidation and Reassessment**

- 7.5.1 Upon receipt of the *Request for Reassessment*, the *Enforcement and Compliance Office* shall validate and assess the findings of breach or claim of *Ancillary Services Provider*.
- 7.5.2 The *Enforcement and Compliance Office*, during verification and assessment, may also consult the *Market Operator*, the *System Operator*, or the *Metering Service Provider*, as necessary, to ascertain the truthfulness of the claim or allegations of the *Ancillary Services Provider*. The *Enforcement and Compliance Office* shall perform the recalculation, as may be appropriate.
- 7.5.3 The assessment, validation, and verification of the information gathered in relation to the request shall be completed within fifteen (15) days from receipt of the *Request for Reassessment*.

## **7.6 Compliance Monitoring and Assessment Reports**

- 7.6.1 If no *Request for Reassessment* is filed by the concerned *Ancillary Services Provider* within the allowable period to file the same under Section 7.4.1, the *Enforcement and Compliance Office* shall issue a *Compliance Monitoring and Assessment Report* based on its monitoring and assessment. The said report and a *Notice of Specified Penalty* shall be issued within sixty (60) *business days* from the end of the month following the covered monitoring period. For instance, the compliance monitoring and assessment report for August *Billing Period* shall be issued on or before 30 October.
- 7.6.2 The *Enforcement and Compliance Office* shall, after due validation and assessment conducted in relation to the *Request for Reassessment*, prepare the *Compliance Monitoring and Assessment Report* which shall:
- contain or provide, among others, a finding whether the concerned *Ancillary Service Provider* is compliant with the *Market Rules* or *Market Manuals*;
  - be issued to the concerned *Ancillary Services Provider* with respect to each *reserve facility* or plant that is subject of monitoring, as applicable; and
  - be issued within five (5) calendar days from completion of revalidation and reassessment as prescribed under Section 7.5.3.



- 7.6.3 The finding of breach of *reserve conformance standards*, as determined in accordance with Sections 7.3, 7.4, and 7.5 hereof, shall have the effect of non-payment of the reserve trading amount to the *Ancillary Services Provider* for the intervals found in breach for which purpose, the *Market Operator* is herein authorized to deduct the reserve amount for the intervals found in breach from the settlement amount in accordance with Section 7.7 of this Manual. This rule applies only to breaches of *Reserve Conformance Standards* occurring in spot reserve transactions.
- 7.6.4 If there is a finding of breach based on the validation and assessment conducted by the *Enforcement and Compliance Office*, the *Compliance Monitoring and Assessment Report* shall likewise be accompanied by a *Notice of Specified Penalty*. Said notice shall indicate the penalty, as computed under Section 8 of this Manual, and shall be served upon the *Ancillary Services Provider* in accordance with the provisions of this Manual.
- 7.6.5 If the *Enforcement and Compliance Office* found, after due validation and assessment, that no breach was committed by the *Ancillary Service Provider*, the *Compliance Monitoring and Assessment Report* shall indicate such findings.
- 7.6.6 The *Compliance Monitoring and Assessment Report* and the *Notice of Specified Penalty* shall be issued by the *Enforcement and Compliance Office* within the period provided under Section 7.6.2 (c) to the *Ancillary Services Provider*.
- 7.6.7 The *Enforcement and Compliance Office* shall likewise issue a *Reserve Conformance Standards Non-Compliance List* for one billing period to the *Market Operator* within the timeframe specified in Section 7.5.3.
- 7.6.8 No request for reconsideration or appeal of the findings concerning compliance with the *Reserve Conformance Standards* shall be filed with, or entertained by, the *Enforcement and Compliance Office*.

## **7.7 Action on Non-Compliance Report**

- 7.7.1 The *Market Operator* shall reflect in the settlement statement the adjustment as specified in the *Reserve Conformance Standards Non-Compliance List* received from the *Enforcement and Compliance Office* under Section 7.6.7 hereof. Upon receipt thereof, the *Market Operator* shall:
- a. calculate the settlement amount due from the *System Operator* taking into account the finding of breach of the *reserve conformance standards* on or before the due date for the issuance of preliminary settlement statements, as set in the *Billing and Settlement Manual*. For this purpose, the *Market Operator* is authorized to deduct from the settlement amount the reserve amount



corresponding to the number of intervals with findings of breach of the *Reserve Conformance Standards*; and

- b. send the preliminary settlement statement to the *Ancillary Services Providers* in accordance with the timeline provided in the *Billing and Settlement Manual*.

7.7.2 The *reserve amount adjustment* shall be accounted for, and reflected in, the immediately succeeding Preliminary Statement, provided that the *Reserve Conformance Standards Non-Compliance List* is received by the *Market Operator* three (3) calendar days after the end of a billing period following the covered monitoring period; otherwise, the same shall be deferred until the next *billing period*. For instance, the *Reserve Conformance Standards Non-Compliance List* is received by the *Market Operator* on 28 August or four (4) calendar days before the issuance of the Preliminary Statement on 01 September, the adjustment shall be reflected in said Preliminary Statement. If the Notice is received on 31 August 2023, the same will be accounted for in the Preliminary Statement to be issued on 02 October.

7.7.3 The *Market Operator* shall, for monitoring purposes, notify the *Enforcement and Compliance Office* of the status of implementation of the *Reserve Conformance Standards Non-Compliance List* including other information relevant to the enforcement of the *reserve conformance standards* on a monthly basis.

## 7.8 Reporting Results

The *Enforcement and Compliance Office* shall submit a consolidated monthly report to the *Department of Energy, Energy Regulatory Commission, PEM Board, and Compliance Committee*, containing the status of the compliance of each *Ancillary Service Provider* with the *Reserve Conformance Standards*.

## SECTION 8 PENALTIES AND SANCTIONS

### 8.1 Enforcement Actions

- 8.1.1 The *Penalty* amount shall be computed for each *billing period* or applicable period in case of *Breach* of *Reserve Conformance Standards* or *Reserve Offer Capacity Compliance*.
- 8.1.2 **Penalties or Sanctions.** In determining the penalty or sanction for a *Breach* committed by the *Ancillary Services Provider*, the following shall be considered –
- a. **By Reserve Facility.** Where an obligation is required to be performed for each registered *reserve facility*, one count of breach is committed for each *Reserve Facility* for which an obligation is not performed. For generating units and customer facilities, the identification of the *Reserve Facility* shall be in accordance with how such is represented in the market network model prevailing at the time the *Breach* occurred. Thus, for a generating plant that is represented by its component units or by blocks or by aggregated units, a *Breach* is determined for each unit, or block, or aggregated units that is found in breach.
  - b. **By Reserve Type.** Where a *Reserve Facility* is certified to provide more than one (1) type of reserve, the occurrence of a breach shall be determined per reserve category in which it is registered in the WESM. The penalty is assessed separately for each type of reserve: regulating, contingency, and/or dispatchable.
  - c. **By Occurrence.** The persistence of the *Ancillary Services Providers* in committing non-compliance, intentional or otherwise, in terms of frequency or number of times that the non-compliance or *Breach* occurred in a particular *Billing Period* or applicable period. The frequency level, reference period, and corresponding penalty level for each type of circumstance are set out in the Frequency of Occurrence Matrix below.

**Table 1 - Frequency of Occurrence Matrix**

Frequency	Penalty Level		
	Level 1	Level 2	Level 3
1 - 864 dispatch intervals over the <i>Billing Period</i>	■		
More than 864 dispatch intervals over the <i>Billing Period</i>		■	
More than 1,440 dispatch intervals over the <i>Billing Period</i>		■	■

- (i) The frequency of occurrence is determined within a *Billing Period* and is counted by the number of occurrences of *Breach* regardless of whether it is consecutive or not.
  - (ii) The counting of frequency of occurrence is reset every *Billing Period*. For instance, the *Breach* that is committed eight hundred sixty-four (864) times within the September *Billing Period* will warrant Level 1 application. If twenty-four (24) counts of *Breach* occur in October *Billing Period*, the same shall be counted anew for the said *Billing Period*, thus, warranting Level 1 application only.
  - (iii) If the *Breach* count reaches Level 2 penalty and the count continues as would warrant application of Level 3 penalty, the Level 2 penalty shall be imposed without prejudice to the imposition of Level 3 penalty under Section 8.1.2 (d) of this Manual.
  - (iv) Notwithstanding the provision on resetting of count for penalty level application purposes, as provided in the preceding section, the overall performance of *Ancillary Services Provider* based on the number of compliances and non-compliances within the year or applicable period shall nonetheless be considered in the annual performance evaluation pursuant to Section 8.1.2 (e) (iii) of this Manual.
- d. **Financial Penalty.** The financial penalty may be a pre-set amount or formula-based. The financial penalty may be escalated depending on the frequency of occurrence of *Breach* as specified in Table 1 of this Manual.

- (i) For *Breach of Reserve Offer Capacity Compliance*.

Level 1: The amount of One Thousand Pesos (PHP 1,000) for each count of *Breach*.

Level 2: The amount of Two Thousand Pesos (PHP 2,000) for each count of *Breach*.

- (ii) For *Breach of Reserve Conformance Standards*

Level 1: The amount that may be computed based on the following:

$$\text{Penalty Amount}_{p,r,a} = 50\% \text{ of } \frac{1}{n} (SC_{p,i} * AR_{c,r,a})$$

Where:

- n** Refers to the number of *dispatch intervals* within a settlement interval, which is 12 for a five-minute market
- SC<sub>p,i</sub>** Refers to the scheduled capacity<sup>16</sup> of *Ancillary Services Provider p* for *dispatch interval i*
- AR<sub>c,r,a</sub>** refers to the Applicable Rate for type of contract *c* for reserve category *r* in reserve region *a*

Applicable Rate:

Reserve Category	Applicable Rate
Regulating Reserve	PHP 3.00/kWh
Contingency Reserve	PHP 2.25/kWh
Dispatchable Reserve	PHP 1.25/kWh

Level 2: Two (2) times the amount of the penalty computed in Level 1.

#### e. Suspension

- (i) The penalty of suspension shall be imposed if the *Breach* count reaches Level 3 based on the Frequency of Occurrence set forth in Table 1 of this Manual.
- (ii) The penalty of suspension would disallow the *Generation Company* to trade its ancillary services capacity in the *Reserve Market* for a period of one month counting from the implementation of the *Notice of Specified Penalty* by the *Market Operator* as provided for in Section 8.2.4 (b) of this Manual. The suspension shall not, in any way, affect the participation of the concerned *Generation Company* with respect to its energy offers in the WESM.
- (iii) The penalty of suspension will be applied if either of the two (2) types of *Breach* reaches Level 3 penalty. For instance, the *Ancillary Services Provider* was imposed a Level 3 penalty for *Breach* of the rule on *Reserve Offer Capacity Compliance* but only Level 2 penalty for *Breach* of the *Reserve Conformance Standards*, a Level 3 penalty shall nonetheless be applied.
- (iv) If the penalty of suspension will affect the contractual obligations of the *System Operator* based on the ancillary services procurement agreement with the *Ancillary Services Providers*, or would, in any way, impair the obligations of an existing contract, the *System Operator* shall inform the *Market Operator* and the *Enforcement and Compliance Office* thereof. Upon

<sup>16</sup> The scheduled capacity shall be converted from MW to kWh for purposes of determining the penalty amount.

assessment and/or confirmation of the possible impairment of a contract, the issuance of a notice of suspension shall be issued with such qualification that the suspension will be implemented only in regard to its participation in the *Reserve Market*.

- (v) If the notice of suspension is qualified in accordance with the preceding paragraph, the *Ancillary Services Provider* may submit offers for reserve through the market participant interface only to the extent permitted under its day-ahead ancillary service schedule as provided to it by the *System Operator* based on their ancillary services procurement agreement.
- (vi) Any *reserve schedules* resulting from the reserve offer submission by *Ancillary Services Provider* despite being suspended from *reserve market* shall not be accounted for in the settlement of the reserve trading amounts during the effectivity of the suspension.

**f. Deregistration**

The penalty of deregistration as *Ancillary Services Provider* shall be imposed under any of the following conditions:

- (i) If the *Ancillary Services Provider* has previously been found in *breach* with at least Level 2 penalty, and the breach at same level of penalty has been committed for at least three (3) months, consecutive or not. For instance, the *Ancillary Services Provider* was found in breach with Level 2 penalty in January, April, and June billing months, the *Ancillary Services Provider* will be deregistered beginning July 2023 or on such date as may be determined by the *Market Operator* under Section 8.2.7 of this Manual.
- (ii) If the facility registered as *Ancillary Services Provider* has been unavailable due to forced or unplanned outage exceeding ninety (90) consecutive days.
- (iii) If the *Ancillary Services Provider* fails to pass the *Annual Ancillary Services Performance Evaluation* taking into account the compliance monitoring results for a period of one (1) year from the date of participation of the *Ancillary Services Provider* in the *Reserve Market*.

For this purpose, the *Market Operator* and the *Enforcement and Compliance Office*, in consultation with the *System Operator*, shall formulate guidelines and procedures for conducting the *Annual Ancillary Services Performance Evaluation*.

A former *Ancillary Services Provider* whose facility was deregistered under the provisions of this Manual may re-register or reapply for membership in the

WESM as *Ancillary Services Provider*, provided that all the requirements for registration provided under the relevant *Market Manual* are fully complied with.

## 8.2 Notice of Specified Penalty

- 8.2.1 A *Notice of Specified Penalty* shall be served on the concerned *Ancillary Services Provider* upon issuance of the *Compliance Monitoring and Assessment Report* by the *Enforcement and Compliance Office* or within the timeline specified under Sections 6.4.1 (d) and 7.6.2 (c).
- 8.2.2 A *Notice of Specified Penalty* required to be issued in accordance with this Manual shall be issued and signed by the President of the *WESM Governance Arm* in accordance with Section 3.3.5 of this Manual.
- 8.2.3 The following shall also be furnished a copy of the *Notice of Specified Penalty* –
- a. The finance unit of the *WESM Governance Arm*
  - b. The *Market Operator*
  - c. The *System Operator*
- 8.2.4 The *Notice of Specified Penalty* shall be implemented within (5) business days from receipt thereof from the *WESM Governance Arm*:
- a. The finance unit of the *WESM Governance Arm* with respect to the billing and collection of the financial penalty by sending the invoice, billing statement or its equivalent to the *Ancillary Services Provider*; and
  - b. The *Market Operator* or *System Operator* with respect to the other enforcement actions such as, but not limited to, suspension or deregistration of the *Ancillary Services Providers*.
- 8.2.5 The concerned *Ancillary Services Provider* shall pay the *Penalty* amount as billed within fifteen (15) business days from receipt of the billing statement from the *WESM Governance Arm*.
- 8.2.6 If the penalty imposed upon the *Ancillary Service Provider* is suspension or deregistration, a clear statement to that effect shall be indicated in the *Notice of Specified Penalty*. It shall serve as the authority of the *Market Operator* or the *System Operator* to implement the procedures that would give effect to the sanctions as a consequence of a finding of *Breach*.
- 8.2.7 The *Market Operator* shall issue a notice of suspension or deregistration to the concerned *Ancillary Services Provider* indicating the start of the suspension or deregistration in consideration of the guidelines set forth in the *WESM Registration, Suspension and De-Registration Criteria and Procedures Manual*.

- 8.2.8 All notices required to be issued by the *WESM Governance Arm* shall be sent through personal service, private courier, postal mail, electronic mail or such other acceptable, speedy, and effective form of communication. The *WESM Governance Arm* shall ensure that all notices are received or acknowledged by the intended recipients.

### 8.3 Remedial Measures

- 8.3.1 An *Ancillary Services Provider* may be required to implement remedial measures by the *Enforcement and Compliance Office*, the *Compliance Committee*, or the *PEM Board* to mitigate or prevent the adverse impact of *Breach* or to prevent recurrence of the *Breach*. The relevant provisions on remedial measures under Section 7.14 of the *Enforcement and Compliance Manual* shall, to the extent applicable, apply to *Ancillary Services Providers*.
- 8.3.2 The *Enforcement and Compliance Office*, in coordination with the *System Operator* or the *Market Operator*, shall monitor the compliance by the concerned *Ancillary Services Provider* of the remedial measures required of it.

### 8.4 Non-Payment of Penalties and Non-Compliance with Remedial Measures

- 8.4.1 A penalty interest shall be additionally imposed upon the concerned *Ancillary Services Provider* in case of non-payment by the *Ancillary Services Providers* of the *financial penalties* imposed on it as a consequence of a *Breach*.

For this purpose, the prevailing legal interest rate shall apply in computing the amount stated in Section 8.1.2 (d) and shall be computed from the date the payment becomes due up to the actual payment of penalty.

- 8.4.2 A penalty of One Hundred Thousand Pesos (PHP 100,000) shall be imposed in case of non-compliance by an *Ancillary Services Provider* with the remedial measures required to be implemented by it under a *Notice of Specified Penalty* or other relevant notices issued in reference to Section 8.3 of this Manual.
- 8.4.3 The aforesaid penalty interest under Section 8.4.1 or the penalty under Section 8.4.2 shall be imposed automatically by the *WESM Governance Arm* upon failure to pay the financial penalty on the due date or to comply with the required remedial measures.

### 8.5 Enforcement Action Monitoring Report

- 8.5.1 The *Enforcement and Compliance Office* shall maintain a complete and updated record of notices issued in relation to the enforcement actions made pursuant to this Manual including the respective status and updates thereof as of a particular period.

- 8.5.2 To the extent practicable, the *WESM Governance Arm* shall endeavor to develop a process, tool, or system, that would promote practical and seamless interface among the *Enforcement and Compliance Office*, the *Market Operator*, the *System Operator*, and the *Ancillary Services Provider* with respect to monitoring of enforcement actions imposed as a consequence of *Breach*, as well as the status of their implementation.



## SECTION 9 AMENDMENT, REPEALING CLAUSE, PUBLICATION AND EFFECTIVITY

### 9.1 Amendments

- 9.1.1 Amendments to this Manual may be initiated by the *WESM Governance Committees*, the *Enforcement and Compliance Office*, the *Market Operator*, the *System Operator* or any other *WESM Member* following procedures for changes to Market Manuals set out in the *WESM Rules* and in the relevant Market Manual. However, any proposed amendments that pertain to the penalty provisions of this Manual shall be submitted to the *Market Surveillance Committee* pursuant to Clause 7.2.5.5 of the *WESM Rules*.
- 9.1.2 Without limiting the grounds or basis upon which this Manual may be amended, amendments to this Manual shall be made to make this Manual consistent with –
- a. Amendments to the *EPIRA* and its Implementing Rules and Regulations affecting enforcement and compliance in the *WESM*;
  - b. Amendments to the *Market Rules* affecting enforcement and compliance in the *WESM*;
  - c. Issuances of the *Energy Regulatory Commission* concerning enforcement of the *WESM Rules*; or
  - d. Issuances of the *Department of Energy* affecting enforcement and compliance in the *WESM*.
- 9.1.3 Amendments to this Manual shall be approved and promulgated by the *Department of Energy*.

### 9.2 Effectivity and Publication

- 9.2.1 This Ancillary Services Monitoring Manual shall become effective upon approval of the *Department of Energy* and fifteen (15) days following its publication in at least two (2) newspapers of general circulation and shall remain in effect until otherwise revoked.
- 9.2.2 This Manual shall likewise be published on the market information website.

## SECTION 10 Transitory Provision

The provisions pertaining to the imposition and amount of sanctions and/or penalties as a consequence of *breach* shall be subject to a six-month relaxation period, without prejudice to extension, with the end in view of encouraging participation and compliance of *Ancillary Services Providers*. This notwithstanding, the provision on non-payment of reserve trading amounts under Section 7.6.3 and 7.7.1 of this Manual shall be binding upon the commercial operation of the *WESM Reserve Market*.

## SECTION 11 APPENDICES

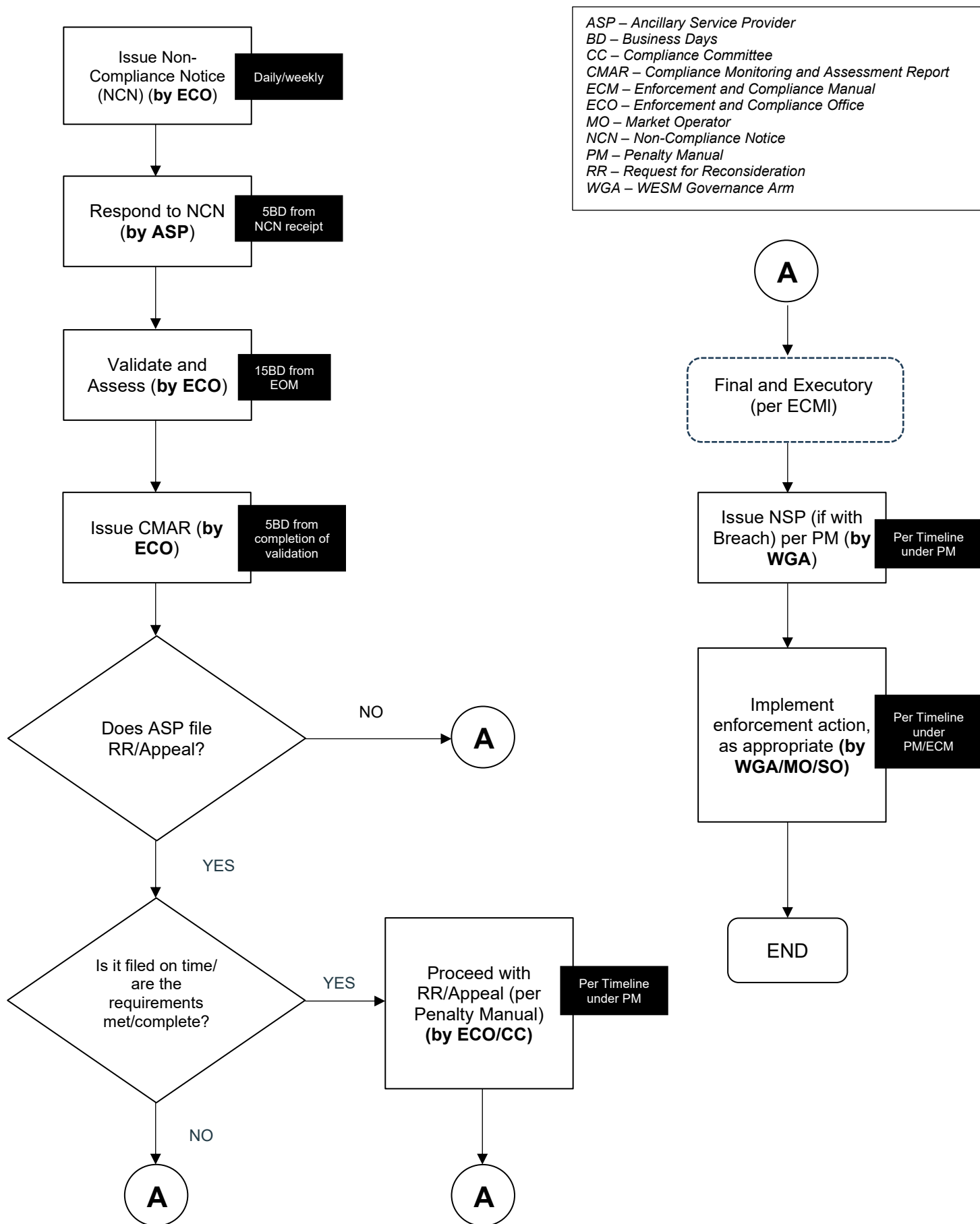
Appendix I – Process Flowchart for Reserve Offer Capacity Compliance Monitoring

Appendix II – Process Flowchart for Reserve Conformance Standards Monitoring

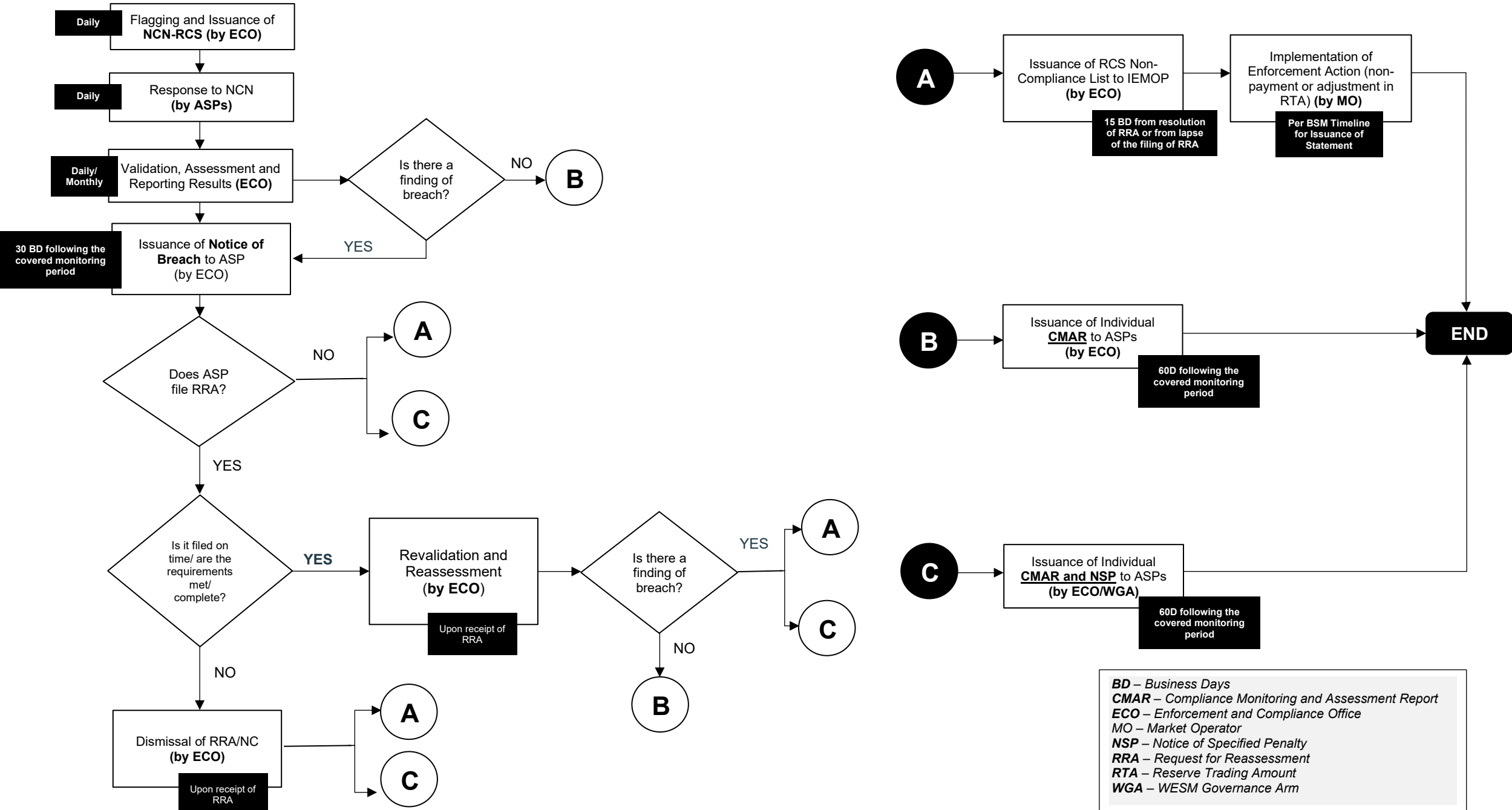
Appendix III – Sample Penalty Computation for Reserve Offer Capacity Compliance (ROCC) and Reserve Conformance Standards (RCS)

Appendix IV – Sample Illustration on the Monitoring of Compliance with Reserve Conformance Standards (RCS)

APPENDIX I: PROCESS FLOWCHART FOR RESERVE OFFER CAPACITY COMPLIANCE



APPENDIX II: PROCESS FLOWCHART FOR RESERVE CONFORMANCE STANDARDS (RCS) MONITORING



### APPENDIX III-A: SAMPLE PENALTY COMPUTATION FOR RESERVE OFFER CAPACITY COMPLIANCE (ROCC)

#### A. Involving One Reserve Type

**Assumption 1:** All intervals indicated here are found in breach of ROCC.  
 The total count of breaches for October billing period is less than 864 intervals.  
 The reserve type for which the breach of ROCC is found is Contingency Reserve (CR)

Billing Period	Resource ID	Delivery Date	Reserve Type	Registered Ancillary Service, MW	Reserve Offer,MW	Finding	Total Breach Count	Penalty Level	Penalty Amount, PhP	Running Total, PhP
October	01RESOURCE_G01	10/11/2023 0:00	CR	100	0	Breach	1	Level 1	₱1,000.00	₱1,000.00
October	01RESOURCE_G01	10/11/2023 0:05	CR	100	0	Breach	2	Level 1	₱1,000.00	₱2,000.00
October	01RESOURCE_G01	10/11/2023 0:10	CR	100	0	Breach	3	Level 1	₱1,000.00	₱3,000.00
October	01RESOURCE_G01	10/11/2023 0:15	CR	100	0	Breach	4	Level 1	₱1,000.00	₱4,000.00
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
October	01RESOURCE_G01	10/11/2023 4:25	CR	100	0	Breach	54	Level 1	₱1,000.00	₱54,000.00
October	01RESOURCE_G01	10/11/2023 4:30	CR	100	0	Breach	55	Level 1	₱1,000.00	₱55,000.00

**Assumption 2:** All intervals indicated here are found in breach of ROCC.  
 The total count of breaches for October billing period exceeded 864 intervals.  
 The reserve type for which the breach of ROCC is found is Contingency Reserve (CR)

Billing Period	Resource ID	Delivery Date	Reserve Type	Registered Ancillary Service, MW	Reserve Offer,MW	Finding	Total Breach Count	Penalty Level	Penalty Amount, PhP	Running Total, PhP
October	01RESOURCE_G01	10/11/2023 0:00	CR	100	0	Breach	1	Level 1	₱1,000.00	₱1,000.00
October	01RESOURCE_G01	10/11/2023 0:05	CR	100	0	Breach	2	Level 1	₱1,000.00	₱2,000.00
October	01RESOURCE_G01	10/11/2023 0:10	CR	100	0	Breach	3	Level 1	₱1,000.00	₱3,000.00
October	01RESOURCE_G01	10/11/2023 0:15	CR	100	0	Breach	4	Level 1	₱1,000.00	₱4,000.00
October	01RESOURCE_G01	10/11/2023 0:20	CR	100	0	Breach	5	Level 1	₱1,000.00	₱5,000.00
October	01RESOURCE_G01	10/11/2023 0:25	CR	100	0	Breach	6	Level 1	₱1,000.00	₱6,000.00
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
October	01RESOURCE_G01	10/14/2023 0:15	CR	100	0	Breach	868	Level 2	₱2,000.00	₱872,000.00
October	01RESOURCE_G01	10/14/2023 0:20	CR	100	0	Breach	869	Level 2	₱2,000.00	₱874,000.00
October	01RESOURCE_G01	10/14/2023 0:25	CR	100	0	Breach	870	Level 2	₱2,000.00	₱876,000.00

## B. Involving Two Reserve Types

**Assumption 1:** All intervals indicated here are found in breach of ROCC.  
 The reserve types for which the breach of ROCC is found are Contingency Reserve (CR) and Regulating Reserves (RR).  
 All the breaches were committed during the billing month of October.  
 The total count of breaches for each reserve type is less than 864 intervals.

Billing Period	Resource ID	Delivery Date	Reserve Type	Registered Ancillary Service, MW	Reserve Offer, MW	Finding	Total CR Breach Count	Total RR Breach Count	CR Penalty Level	RR Penalty Level	CR Penalty Amount, PhP	RR Penalty Amount, PhP	CR Running Total, PhP	RR Running Total, PhP	Total Penalty Amount, PhP
October	01RESOURCE_G01	10/11/2023 0:00	CR	100	0	Breach	1	0	Level 1	n/a	₱1,000.00	₱0.00	₱1,000.00	₱0.00	₱1,000.00
October	01RESOURCE_G01	10/11/2023 0:05	CR	100	0	Breach	2	0	Level 1	n/a	₱1,000.00	₱0.00	₱2,000.00	₱0.00	₱2,000.00
October	01RESOURCE_G01	10/11/2023 0:10	CR	100	0	Breach	3	0	Level 1	n/a	₱1,000.00	₱0.00	₱3,000.00	₱0.00	₱3,000.00
October	01RESOURCE_G01	10/11/2023 0:15	CR	100	0	Breach	4	0	Level 1	n/a	₱1,000.00	₱0.00	₱4,000.00	₱0.00	₱4,000.00
October	01RESOURCE_G01	10/11/2023 0:20	CR	100	0	Breach	5	0	Level 1	n/a	₱1,000.00	₱0.00	₱5,000.00	₱0.00	₱5,000.00
October	01RESOURCE_G01	10/11/2023 0:25	CR	100	0	Breach	6	0	Level 1	n/a	₱1,000.00	₱0.00	₱6,000.00	₱0.00	₱6,000.00
October	01RESOURCE_G01	10/11/2023 0:30	CR	100	0	Breach	7	0	Level 1	n/a	₱1,000.00	₱0.00	₱7,000.00	₱0.00	₱7,000.00
October	01RESOURCE_G01	10/11/2023 0:35	CR	100	0	Breach	8	0	Level 1	n/a	₱1,000.00	₱0.00	₱8,000.00	₱0.00	₱8,000.00
October	01RESOURCE_G01	10/11/2023 0:40	CR	100	0	Breach	9	0	Level 1	n/a	₱1,000.00	₱0.00	₱9,000.00	₱0.00	₱9,000.00
October	01RESOURCE_G01	10/11/2023 0:45	CR	100	0	Breach	10	0	Level 1	n/a	₱1,000.00	₱0.00	₱10,000.00	₱0.00	₱10,000.00
October	01RESOURCE_G01	10/11/2023 0:50	CR	100	0	Breach	11	0	Level 1	n/a	₱1,000.00	₱0.00	₱11,000.00	₱0.00	₱11,000.00
October	01RESOURCE_G01	10/11/2023 0:55	CR	100	0	Breach	12	0	Level 1	n/a	₱1,000.00	₱0.00	₱12,000.00	₱0.00	₱12,000.00
October	01RESOURCE_G01	10/11/2023 1:00	RR	100	0	Breach	12	1	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱1,000.00	₱13,000.00
October	01RESOURCE_G01	10/11/2023 1:05	RR	100	0	Breach	12	2	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱2,000.00	₱14,000.00
October	01RESOURCE_G01	10/11/2023 1:10	RR	100	0	Breach	12	3	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱3,000.00	₱15,000.00
October	01RESOURCE_G01	10/11/2023 1:15	RR	100	0	Breach	12	4	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱4,000.00	₱16,000.00
October	01RESOURCE_G01	10/11/2023 1:20	RR	100	0	Breach	12	5	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱5,000.00	₱17,000.00
October	01RESOURCE_G01	10/11/2023 1:25	RR	100	0	Breach	12	6	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱6,000.00	₱18,000.00
October	01RESOURCE_G01	10/11/2023 1:30	RR	100	0	Breach	12	7	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱7,000.00	₱19,000.00
October	01RESOURCE_G01	10/11/2023 1:35	RR	100	0	Breach	12	8	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱8,000.00	₱20,000.00
October	01RESOURCE_G01	10/11/2023 1:40	RR	100	0	Breach	12	9	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱9,000.00	₱21,000.00
October	01RESOURCE_G01	10/11/2023 1:45	RR	100	0	Breach	12	10	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱10,000.00	₱22,000.00
October	01RESOURCE_G01	10/11/2023 1:50	RR	100	0	Breach	12	11	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱11,000.00	₱23,000.00
October	01RESOURCE_G01	10/11/2023 1:55	RR	100	0	Breach	12	12	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱12,000.00	₱24,000.00

**Assumption 2:** All intervals indicated here are found in breach of ROCC.

The reserve types for which the breach of ROCC is found are Contingency Reserve (CR) and Regulating Reserves (RR).

All the breaches were committed during the billing month of October.

The total count of breaches for each reserve type is: (a) RR = less than 864 intervals; and (b) CR = more than 864 intervals.

Billing Period	Resource ID	Delivery Date	Reserve Type	Registered Ancillary Service, MW	Reserve Offer, MW	Finding	Total CR Breach Count	Total RR Breach Count	CR Penalty Level	RR Penalty Level	CR Penalty Amount, PhP	RR Penalty Amount, PhP	CR Running Total, PhP	RR Running Total, PhP	Total Penalty Amount, PhP
October	01RESOURCE_G01	10/11/2023 0:00	CR	100	0	Breach	1	0	Level 1	n/a	₱1,000.00	₱0.00	₱1,000.00	₱0.00	₱1,000.00
October	01RESOURCE_G01	10/11/2023 0:05	CR	100	0	Breach	2	0	Level 1	n/a	₱1,000.00	₱0.00	₱2,000.00	₱0.00	₱2,000.00
October	01RESOURCE_G01	10/11/2023 0:10	CR	100	0	Breach	3	0	Level 1	n/a	₱1,000.00	₱0.00	₱3,000.00	₱0.00	₱3,000.00
October	01RESOURCE_G01	10/11/2023 0:15	CR	100	0	Breach	4	0	Level 1	n/a	₱1,000.00	₱0.00	₱4,000.00	₱0.00	₱4,000.00
October	01RESOURCE_G01	10/11/2023 0:20	CR	100	0	Breach	5	0	Level 1	n/a	₱1,000.00	₱0.00	₱5,000.00	₱0.00	₱5,000.00
October	01RESOURCE_G01	10/11/2023 0:25	CR	100	0	Breach	6	0	Level 1	n/a	₱1,000.00	₱0.00	₱6,000.00	₱0.00	₱6,000.00
October	01RESOURCE_G01	10/11/2023 0:30	CR	100	0	Breach	7	0	Level 1	n/a	₱1,000.00	₱0.00	₱7,000.00	₱0.00	₱7,000.00
October	01RESOURCE_G01	10/11/2023 0:35	CR	100	0	Breach	8	0	Level 1	n/a	₱1,000.00	₱0.00	₱8,000.00	₱0.00	₱8,000.00
October	01RESOURCE_G01	10/11/2023 0:40	CR	100	0	Breach	9	0	Level 1	n/a	₱1,000.00	₱0.00	₱9,000.00	₱0.00	₱9,000.00
October	01RESOURCE_G01	10/11/2023 0:45	CR	100	0	Breach	10	0	Level 1	n/a	₱1,000.00	₱0.00	₱10,000.00	₱0.00	₱10,000.00
October	01RESOURCE_G01	10/11/2023 0:50	CR	100	0	Breach	11	0	Level 1	n/a	₱1,000.00	₱0.00	₱11,000.00	₱0.00	₱11,000.00
October	01RESOURCE_G01	10/11/2023 0:55	CR	100	0	Breach	12	0	Level 1	n/a	₱1,000.00	₱0.00	₱12,000.00	₱0.00	₱12,000.00
October	01RESOURCE_G01	10/11/2023 1:00	RR	100	0	Breach	12	1	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱1,000.00	₱13,000.00
October	01RESOURCE_G01	10/11/2023 1:05	RR	100	0	Breach	12	2	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱2,000.00	₱14,000.00
October	01RESOURCE_G01	10/11/2023 1:10	RR	100	0	Breach	12	3	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱3,000.00	₱15,000.00
October	01RESOURCE_G01	10/11/2023 1:15	RR	100	0	Breach	12	4	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱4,000.00	₱16,000.00
October	01RESOURCE_G01	10/11/2023 1:20	RR	100	0	Breach	12	5	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱5,000.00	₱17,000.00
October	01RESOURCE_G01	10/11/2023 1:25	RR	100	0	Breach	12	6	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱6,000.00	₱18,000.00
October	01RESOURCE_G01	10/11/2023 1:30	RR	100	0	Breach	12	7	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱7,000.00	₱19,000.00
October	01RESOURCE_G01	10/11/2023 1:35	RR	100	0	Breach	12	8	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱8,000.00	₱20,000.00
October	01RESOURCE_G01	10/11/2023 1:40	RR	100	0	Breach	12	9	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱9,000.00	₱21,000.00
October	01RESOURCE_G01	10/11/2023 1:45	RR	100	0	Breach	12	10	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱10,000.00	₱22,000.00
October	01RESOURCE_G01	10/11/2023 1:50	RR	100	0	Breach	12	11	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱11,000.00	₱23,000.00
October	01RESOURCE_G01	10/11/2023 1:55	RR	100	0	Breach	12	12	n/a	Level 1	₱0.00	₱1,000.00	₱12,000.00	₱12,000.00	₱24,000.00
October	01RESOURCE_G01	10/11/2023 2:00	CR	100	0	Breach	13	12	Level 1	n/a	₱1,000.00	₱0.00	₱13,000.00	₱12,000.00	₱25,000.00
October	01RESOURCE_G01	10/11/2023 2:05	CR	100	0	Breach	14	12	Level 1	n/a	₱1,000.00	₱0.00	₱14,000.00	₱12,000.00	₱26,000.00
October	01RESOURCE_G01	10/11/2023 2:10	CR	100	0	Breach	15	12	Level 1	n/a	₱1,000.00	₱0.00	₱15,000.00	₱12,000.00	₱27,000.00
:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
October	01RESOURCE_G01	10/14/2023 1:15	CR	100	0	Breach	868	12	Level 2	n/a	₱2,000.00	₱0.00	₱872,000.00	₱12,000.00	₱884,000.00
October	01RESOURCE_G01	10/14/2023 1:20	CR	100	0	Breach	869	12	Level 2	n/a	₱2,000.00	₱0.00	₱874,000.00	₱12,000.00	₱886,000.00
October	01RESOURCE_G01	10/14/2023 1:25	CR	100	0	Breach	870	12	Level 2	n/a	₱2,000.00	₱0.00	₱876,000.00	₱12,000.00	₱888,000.00
October	01RESOURCE_G01	10/14/2023 1:30	CR	100	0	Breach	871	12	Level 2	n/a	₱2,000.00	₱0.00	₱878,000.00	₱12,000.00	₱890,000.00

## APPENDIX III-B: SAMPLE PENALTY COMPUTATION FOR RESERVE CONFORMANCE STANDARDS (RCS)

### A. Involving One Reserve Type

**Assumption 1:** All intervals indicated here are found in breach of RCS.

The total count of breaches for October billing period is 864 intervals.

The reserve type for which the breach of RCS is found is Contingency Reserve (**CR**)

Billing Period	Resource ID	Delivery Date	Reserve Type	Applicable Rate, PhP / kWh	Scheduled Capacity, MW	Finding	Penalty Amount, PhP*	Running Total, PhP	Breach Count (Running Total)	Penalty Level
October	01RESOURCE_G01	10/11/2023 0:00	CR	2.25	86	Breach	₱8,062.50	₱8,062.50	1	Level 1
October	01RESOURCE_G01	10/11/2023 0:05	CR	2.25	86	Breach	₱8,062.50	₱16,125.00	2	Level 1
October	01RESOURCE_G01	10/11/2023 0:10	CR	2.25	86	Breach	₱8,062.50	₱24,187.50	3	Level 1
October	01RESOURCE_G01	10/11/2023 0:15	CR	2.25	86	Breach	₱8,062.50	₱32,250.00	4	Level 1
October	01RESOURCE_G01	10/11/2023 0:20	CR	2.25	86	Breach	₱8,062.50	₱40,312.50	5	Level 1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
October	01RESOURCE_G01	10/13/2023 23:55	CR	2.25	86	Breach	₱8,062.50	₱6,966,000.00	864	Level 1

**Assumption 2:** All intervals indicated here are found in breach of RCS.

The total count of breaches for the October billing period **exceeded** 864 intervals.

The reserve type for which the breach of RCS is found is Contingency Reserve (**CR**)

Billing Period	Resource ID	Delivery Date	Reserve Type	Applicable Rate, PhP / kWh	Scheduled Capacity, MW	Finding	Penalty Amount, PhP	Running Total, PhP	Breach Count (Running Total)	Penalty Level
October	01RESOURCE_G01	10/11/2023 0:00	CR	2.25	86	Breach	₱8,062.50	₱8,062.50	1	Level 1
October	01RESOURCE_G01	10/11/2023 0:05	CR	2.25	86	Breach	₱8,062.50	₱16,125.00	2	Level 1
October	01RESOURCE_G01	10/11/2023 0:10	CR	2.25	86	Breach	₱8,062.50	₱24,187.50	3	Level 1
October	01RESOURCE_G01	10/11/2023 0:15	CR	2.25	86	Breach	₱8,062.50	₱32,250.00	4	Level 1
October	01RESOURCE_G01	10/11/2023 0:20	CR	2.25	86	Breach	₱8,062.50	₱40,312.50	5	Level 1
October	01RESOURCE_G01	10/11/2023 0:25	CR	2.25	86	Breach	₱8,062.50	₱48,375.00	6	Level 1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
October	01RESOURCE_G01	10/13/2023 23:55	CR	2.25	86	Breach	₱8,062.50	₱6,966,000.00	864	Level 1
October	01RESOURCE_G01	10/14/2023 0:00	CR	2.25	86	Breach	₱16,125.00	₱6,982,125.00	865	Level 2
October	01RESOURCE_G01	10/14/2023 0:05	CR	2.25	86	Breach	₱16,125.00	₱6,998,250.00	866	Level 2

\*Note: Formula for Penalty Amount:  $Penalty\ Amount = \frac{1}{12} \left( \frac{Scheduled\ Capacity\ in\ MW \times Applicable\ Rate\ in\ kWh \times 1000}{2} \right)$



## B. Involving Two (2) Reserve Types

**Assumption 1:** All intervals indicated here are found in breach of RCS.

The reserve types for which the breach of RCS is found are Contingency Reserve (CR) and Regulating Reserves (RR).

All the breaches were committed during the billing month of October.

The total count of breaches for each reserve type is less than 864 intervals.

Billing Period	Resource ID	Delivery Date	Reserve Type	Applicable Rate, PhP / kWh	Scheduled Capacity, MW	Finding	Total CR Breach Count	Total RR Breach Count	CR Penalty Level	RR Penalty Level	CR Penalty Amount, PhP	CR Running Total, PhP	RR Penalty Amount, PhP	RR Running Total, PhP
October	01RESOURCE_G01	10/11/2023 0:00	CR	2.25	86	Breach	1	0	Level 1	Level 1	₱8,062.50	₱8,062.50	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:05	CR	2.25	86	Breach	2	0	Level 1	Level 1	₱8,062.50	₱16,125.00	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:10	CR	2.25	86	Breach	3	0	Level 1	Level 1	₱8,062.50	₱24,187.50	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:15	CR	2.25	86	Breach	4	0	Level 1	Level 1	₱8,062.50	₱32,250.00	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:20	CR	2.25	86	Breach	5	0	Level 1	Level 1	₱8,062.50	₱40,312.50	₱0.00	₱0.00
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
October	01RESOURCE_G01	10/11/2023 0:55	CR	2.25	86	Breach	12	0	Level 1	Level 1	₱8,062.50	₱96,750.00	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 1:00	RR	3	86	Breach	12	1	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱10,750.00
October	01RESOURCE_G01	10/11/2023 1:05	RR	3	86	Breach	12	2	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱21,500.00
October	01RESOURCE_G01	10/11/2023 1:10	RR	3	86	Breach	12	3	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱32,250.00
October	01RESOURCE_G01	10/11/2023 1:15	RR	3	86	Breach	12	4	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱43,000.00
October	01RESOURCE_G01	10/11/2023 1:20	RR	3	86	Breach	12	5	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱53,750.00
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
October	01RESOURCE_G01	10/11/2023 2:55	RR	3	86	Breach	12	24	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱258,000.00
Total														₱354,750.00

**Assumption 2:** All intervals indicated here are found in breach of RCS.

The reserve types for which the breach of RCS is found are Contingency Reserve (CR) and Regulating Reserves (RR).

All the breaches were committed for the billing month of October.

The total count of breaches for each reserve type is: (a) RR = less than 864 intervals; and (b) CR = more than 864 intervals

Billing Period	Resource ID	Delivery Date	Reserve Type	Applicable Rate, PhP / kWh	Scheduled Capacity, MW	Finding	Total CR Breach Count	Total RR Breach Count	CR Penalty Level	RR Penalty Level	CR Penalty Amount, PhP	CR Running Total, PhP	RR Penalty Amount, PhP	RR Running Total, PhP
October	01RESOURCE_G01	10/11/2023 0:00	CR	2.25	86	Breach	1	0	Level 1	Level 1	₱8,062.50	₱8,062.50	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:05	CR	2.25	86	Breach	2	0	Level 1	Level 1	₱8,062.50	₱16,125.00	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:10	CR	2.25	86	Breach	3	0	Level 1	Level 1	₱8,062.50	₱24,187.50	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:15	CR	2.25	86	Breach	4	0	Level 1	Level 1	₱8,062.50	₱32,250.00	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:20	CR	2.25	86	Breach	5	0	Level 1	Level 1	₱8,062.50	₱40,312.50	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:25	CR	2.25	86	Breach	6	0	Level 1	Level 1	₱8,062.50	₱48,375.00	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:30	CR	2.25	86	Breach	7	0	Level 1	Level 1	₱8,062.50	₱56,437.50	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:35	CR	2.25	86	Breach	8	0	Level 1	Level 1	₱8,062.50	₱64,500.00	₱0.00	₱0.00

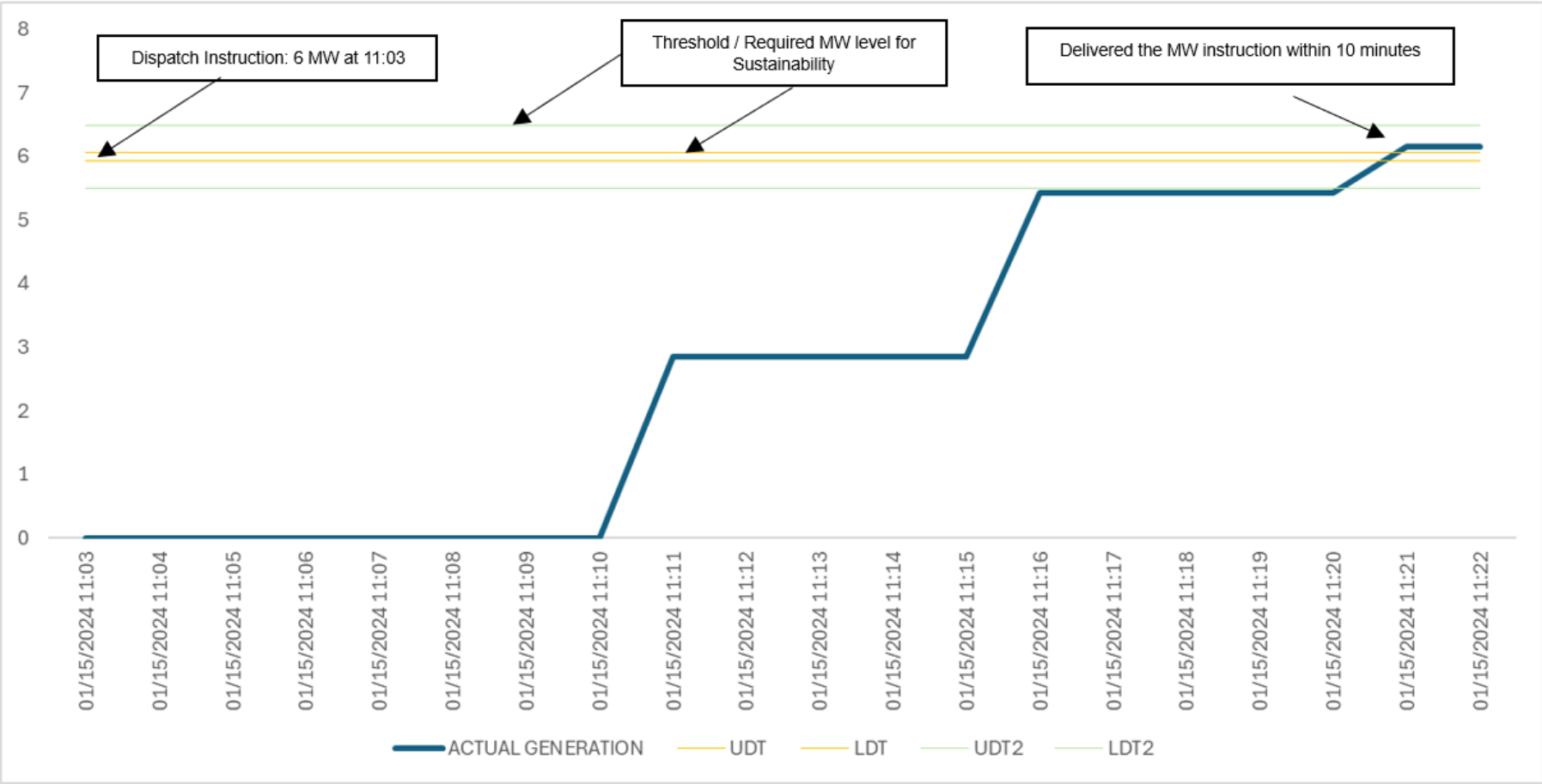
Billing Period	Resource ID	Delivery Date	Reserve Type	Applicable Rate, PhP / kWh	Scheduled Capacity, MW	Finding	Total CR Breach Count	Total RR Breach Count	CR Penalty Level	RR Penalty Level	CR Penalty Amount, PhP	CR Running Total, PhP	RR Penalty Amount, PhP	RR Running Total, PhP
October	01RESOURCE_G01	10/11/2023 0:40	CR	2.25	86	Breach	9	0	Level 1	Level 1	₱8,062.50	₱72,562.50	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:45	CR	2.25	86	Breach	10	0	Level 1	Level 1	₱8,062.50	₱80,625.00	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:50	CR	2.25	86	Breach	11	0	Level 1	Level 1	₱8,062.50	₱88,687.50	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 0:55	CR	2.25	86	Breach	12	0	Level 1	Level 1	₱8,062.50	₱96,750.00	₱0.00	₱0.00
October	01RESOURCE_G01	10/11/2023 1:00	RR	3	86	Breach	12	1	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱10,750.00
October	01RESOURCE_G01	10/11/2023 1:05	RR	3	86	Breach	12	2	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱21,500.00
October	01RESOURCE_G01	10/11/2023 1:10	RR	3	86	Breach	12	3	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱32,250.00
October	01RESOURCE_G01	10/11/2023 1:15	RR	3	86	Breach	12	4	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱43,000.00
October	01RESOURCE_G01	10/11/2023 1:20	RR	3	86	Breach	12	5	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱53,750.00
October	01RESOURCE_G01	10/11/2023 1:25	RR	3	86	Breach	12	6	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱64,500.00
October	01RESOURCE_G01	10/11/2023 1:30	RR	3	86	Breach	12	7	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱75,250.00
October	01RESOURCE_G01	10/11/2023 1:35	RR	3	86	Breach	12	8	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱86,000.00
October	01RESOURCE_G01	10/11/2023 1:40	RR	3	86	Breach	12	9	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱96,750.00
October	01RESOURCE_G01	10/11/2023 1:45	RR	3	86	Breach	12	10	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱107,500.00
October	01RESOURCE_G01	10/11/2023 1:50	RR	3	86	Breach	12	11	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱118,250.00
October	01RESOURCE_G01	10/11/2023 1:55	RR	3	86	Breach	12	12	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱129,000.00
October	01RESOURCE_G01	10/11/2023 2:00	RR	3	86	Breach	12	13	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱139,750.00
October	01RESOURCE_G01	10/11/2023 2:05	RR	3	86	Breach	12	14	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱150,500.00
October	01RESOURCE_G01	10/11/2023 2:10	RR	3	86	Breach	12	15	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱161,250.00
October	01RESOURCE_G01	10/11/2023 2:15	RR	3	86	Breach	12	16	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱172,000.00
October	01RESOURCE_G01	10/11/2023 2:20	RR	3	86	Breach	12	17	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱182,750.00
October	01RESOURCE_G01	10/11/2023 2:25	RR	3	86	Breach	12	18	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱193,500.00
October	01RESOURCE_G01	10/11/2023 2:30	RR	3	86	Breach	12	19	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱204,250.00
October	01RESOURCE_G01	10/11/2023 2:35	RR	3	86	Breach	12	20	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱215,000.00
October	01RESOURCE_G01	10/11/2023 2:40	RR	3	86	Breach	12	21	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱225,750.00
October	01RESOURCE_G01	10/11/2023 2:45	RR	3	86	Breach	12	22	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱236,500.00
October	01RESOURCE_G01	10/11/2023 2:50	RR	3	86	Breach	12	23	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱247,250.00
October	01RESOURCE_G01	10/11/2023 2:55	RR	3	86	Breach	12	24	Level 1	Level 1	₱0.00	₱96,750.00	₱10,750.00	₱258,000.00
October	01RESOURCE_G01	10/11/2023 3:00	CR	2.25	86	Breach	13	24	Level 1	Level 1	₱8,062.50	₱104,812.50	₱0.00	₱258,000.00
October	01RESOURCE_G01	10/11/2023 3:05	CR	2.25	86	Breach	14	24	Level 1	Level 1	₱8,062.50	₱112,875.00	₱0.00	₱258,000.00
October	01RESOURCE_G01	10/11/2023 3:10	CR	2.25	86	Breach	15	24	Level 1	Level 1	₱8,062.50	₱120,937.50	₱0.00	₱258,000.00
October	01RESOURCE_G01	10/11/2023 3:15	CR	2.25	86	Breach	16	24	Level 1	Level 1	₱8,062.50	₱129,000.00	₱0.00	₱258,000.00
:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
October	01RESOURCE_G01	10/14/2023 1:50	CR	2.25	86	Breach	863	24	Level 1	Level 1	₱8,062.50	₱6,957,937.50	₱0.00	₱258,000.00
October	01RESOURCE_G01	10/14/2023 1:55	CR	2.25	86	Breach	864	24	Level 1	Level 1	₱8,062.50	₱6,966,000.00	₱0.00	₱258,000.00
October	01RESOURCE_G01	10/14/2023 2:00	CR	2.25	86	Breach	865	24	Level 2	Level 1	₱16,125.00	₱6,982,125.00	₱0.00	₱258,000.00
October	01RESOURCE_G01	10/14/2023 2:05	CR	2.25	86	Breach	866	24	Level 2	Level 1	₱16,125.00	₱6,998,250.00	₱0.00	₱258,000.00
October	01RESOURCE_G01	10/14/2023 2:10	CR	2.25	86	Breach	867	24	Level 2	Level 1	₱16,125.00	₱7,014,375.00	₱0.00	₱258,000.00
October	01RESOURCE_G01	10/14/2023 2:15	CR	2.25	86	Breach	868	24	Level 2	Level 1	₱16,125.00	₱7,030,500.00	₱0.00	₱258,000.00
October	01RESOURCE_G01	10/14/2023 2:20	CR	2.25	86	Breach	869	24	Level 2	Level 1	₱16,125.00	₱7,046,625.00	₱0.00	₱258,000.00
October	01RESOURCE_G01	10/14/2023 2:25	CR	2.25	86	Breach	870	24	Level 2	Level 1	₱16,125.00	₱7,062,750.00	₱0.00	₱258,000.00
Total														₱7,320,750.00

**APPENDIX IV: Sample Illustration on the Monitoring of Compliance with Reserve Conformance Standards (RCS)**

**1. Illustration depicting Sustainability for an Ancillary Service Facility with a Dispatchable Reserve (DR) Schedule**

TIME_INTERVAL	TIME_INTERVAL	INSTRUCTION	MW_FROM	MW_TO	CATEGORY
01RESOURCE_G02	1/14/2024 17:21	CUT - IN	0	8	DISPATCHABLE RESERVE
01RESOURCE_G02	1/14/2024 20:43	CUT - OUT	8	0	DISPATCHABLE RESERVE
01RESOURCE_G01	1/15/2024 11:03	ON LINE	0	6	DISPATCHABLE RESERVE
01RESOURCE_G01	1/15/2024 11:33	INCREASE LOAD	6	8	DISPATCHABLE RESERVE
01RESOURCE_G01	1/15/2024 15:29	CUT-OUT ASPA DISPATCH	8	0	DISPATCHABLE RESERVE
01RESOURCE_G02	1/15/2024 17:18	ASPA DISPATCH	0	8	DISPATCHABLE RESERVE

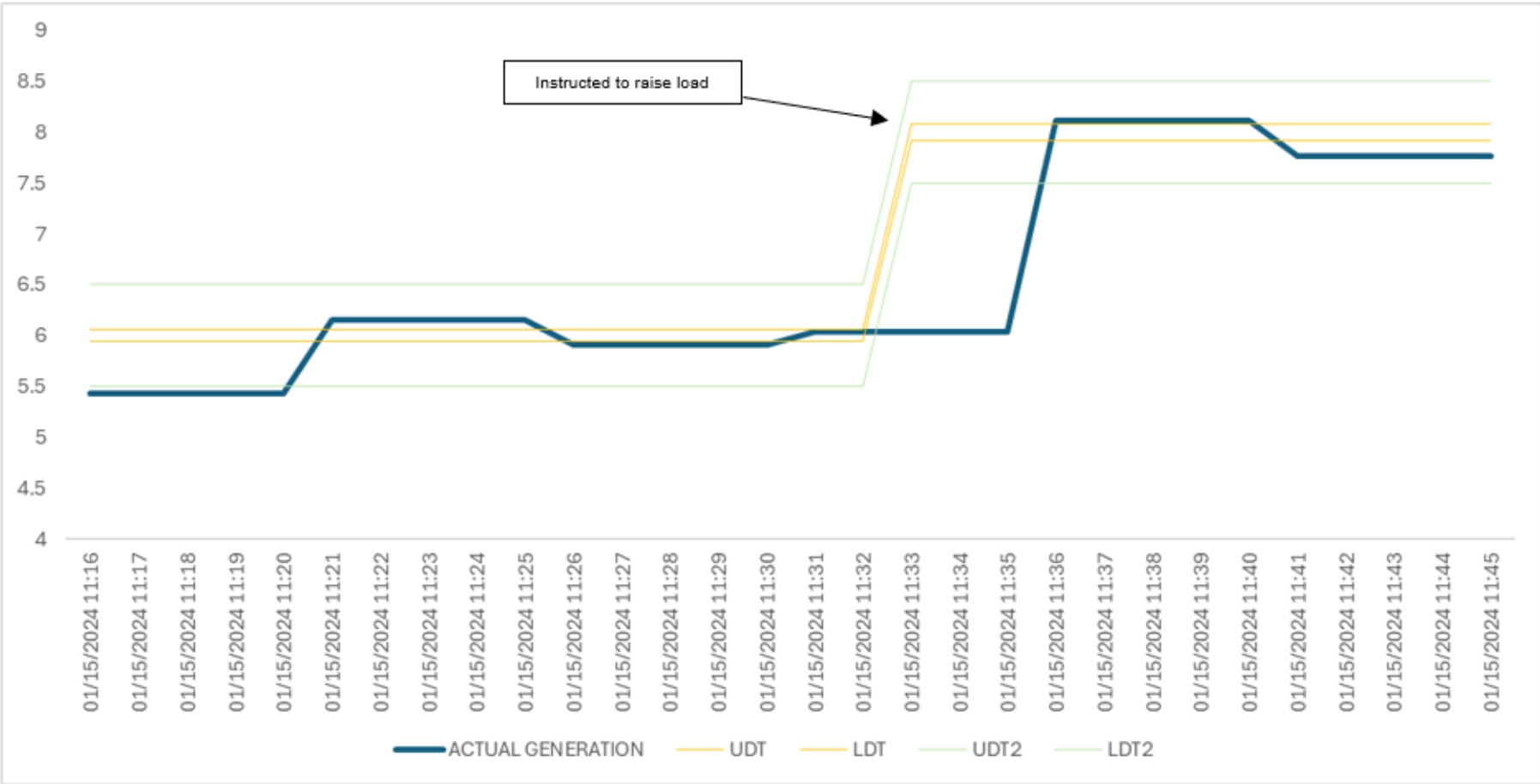
**Fig. 1.0 Table of Sample Dispatch Instruction Report with Active Instructions**



**Fig. 2.0 Provision of DR instruction during synchronization**

Observation:

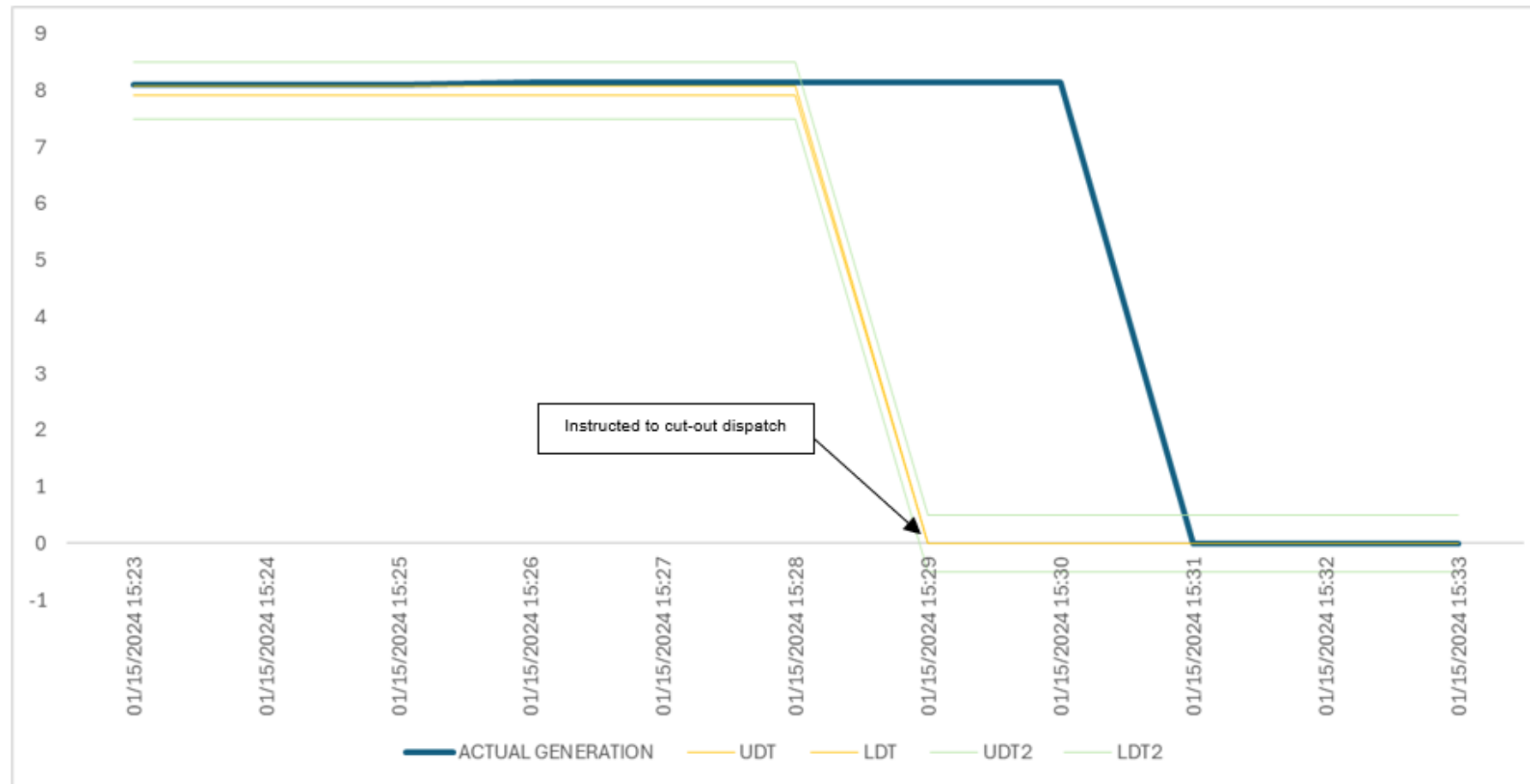
- 01RESOURCE\_G01 was offline prior to instruction (Status requirement: **COMPLIANT**)
- 01RESOURCE\_G01 synchronized at 11:11 (within Interval 11:15) or 8 minutes after the instruction (Synchronization requirement: **COMPLIANT**)
- 01RESOURCE\_G01 delivered the 6 MW instruction at 11:21 (within interval 11:25) or 10 minutes after synchronization (Sustainability requirement: **COMPLIANT**).



**Fig. 3.0 Provision of DR instruction within Threshold as Sustainability Measure**

Observation:

- 01RESOURCE\_G01 was able to sustain active instruction from 11:25 to 11:30 (Sustainability requirement: **COMPLIANT**).
- 01RESOURCE\_G01 received another instruction to raise load from 6 MW to 8 MW at 11:33 (within Interval 11:35); At 11:36 (within interval 11:40) 01RESOURCE\_G01 delivered the 8 MW instruction. (Sustainability requirement: **FOR FURTHER ASSESSMENT**).



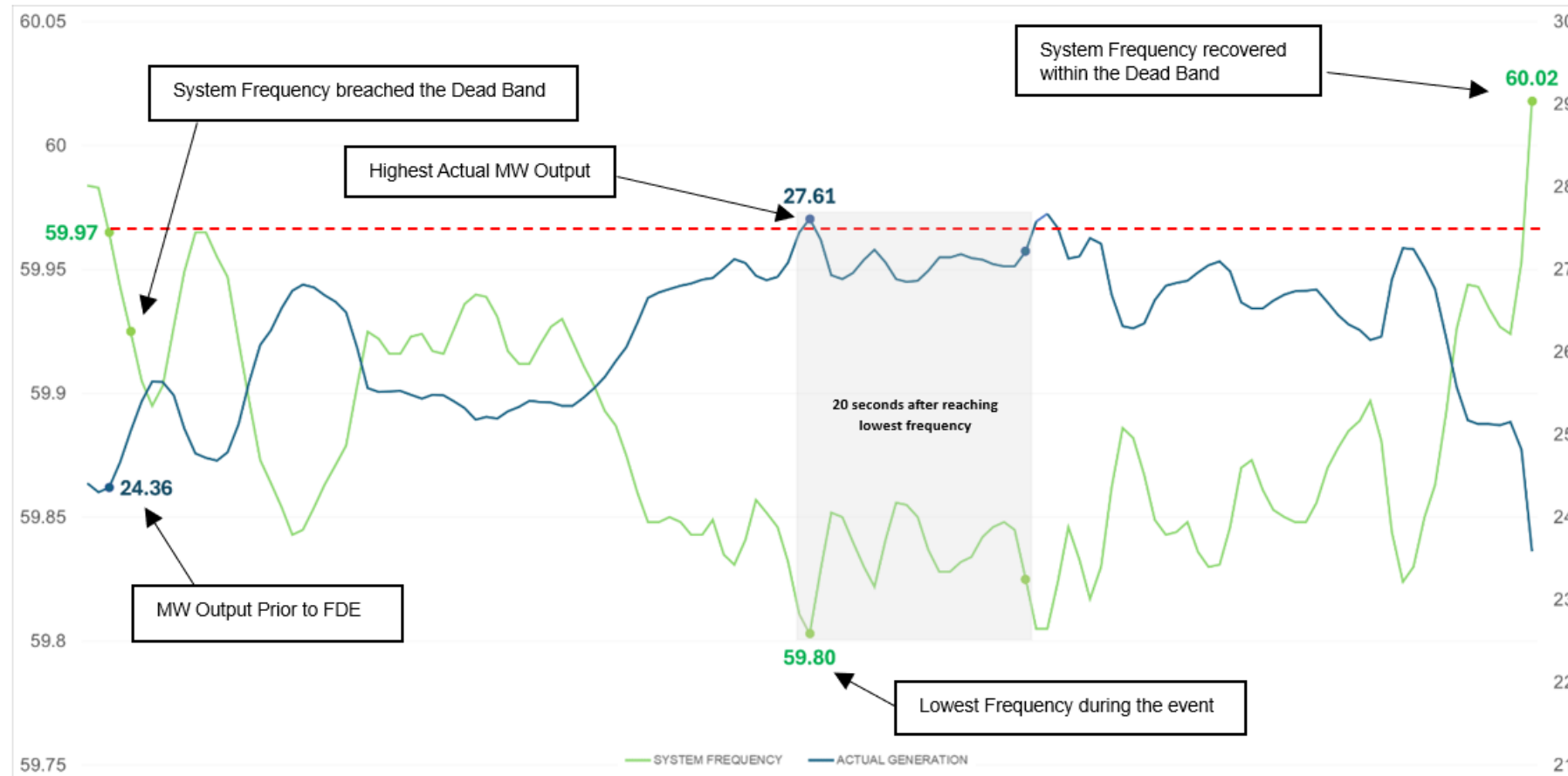
**Fig. 4.0 Shutdown procedure after the provision of DR instruction**

Observation:

- 01RESOURCE\_G01 was able to sustain active instruction from 11:33 to 15:25 (Sustainability requirement: **COMPLIANT**).
- 01RESOURCE\_G01 received another instruction at 15:29 to shut down; At 15:31, the unit was offline. (Sustainability requirement: **FOR FURTHER ASSESSMENT**).

## 2. Illustration on the determination of *Response Accuracy* using *Highest* and *Lowest* Actual MW Output depending on the System Frequency Condition

**Scenario 1:** The System Frequency falls below the lower deadband threshold, the reserve facility needs to react by increasing generation to correct the frequency.



**Fig 5.0 Sample Illustration when System Frequency breached lower Deadband**

For example, the following are the reserve facility's certified characteristics:

- Droop Setting: 4.5%
- Deadband Settings: 0.03 Hz
- Rated Capacity: 65.4 MW

Given:

- Highest Actual MW Output: 27.61 MW (within the 20-second period after the lowest frequency)
- MW Output Prior to FDE: 24.36 MW
- Lowest Frequency during FDE: 59.80 Hz

### Computation:

$$\begin{aligned}
 &\text{Actual MW Response Capacity} \\
 &= \text{Highest Actual MW Output} - \text{MW Output Prior to Frequency-Driven Event} \\
 &= 27.61 \text{ MW} - 24.36 \text{ MW} \\
 &= \mathbf{3.25 \text{ MW}}
 \end{aligned}$$

$$\begin{aligned}
 &\text{Static Gain} \\
 &= \frac{\text{Rated Capacity}}{\text{Droop Setting} \times \text{Nominal Frequency}} \\
 &= \frac{65.4 \text{ MW}}{4.5 \% \times 60 \text{ Hz}} \times 100\% \\
 &= \mathbf{24.22 \text{ MW/Hz}}
 \end{aligned}$$

$$\begin{aligned}
 &\text{Frequency Prior to Frequency-Driven Event} \\
 &= \text{Nominal Frequency} \pm \text{Deadband Setting} \\
 &= 60 \text{ Hz} - 0.03 \text{ Hz} \\
 &= \mathbf{59.97 \text{ Hz}}
 \end{aligned}$$

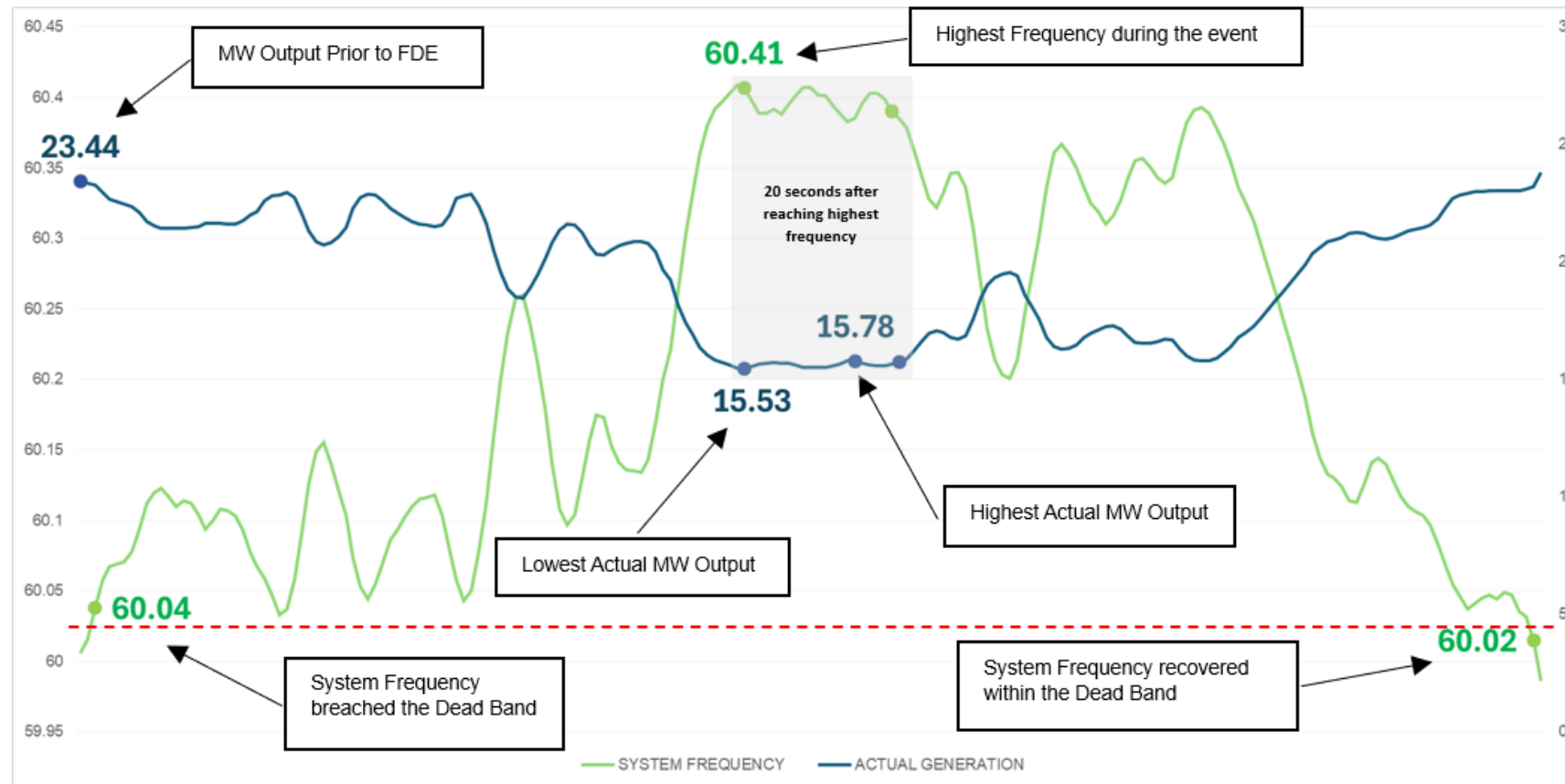
$$\begin{aligned}
 &\text{Frequency Change} \\
 &= \text{Frequency Prior to Frequency-Driven Event} - \text{Lowest Frequency During Frequency-Driven Event} \\
 &= 59.97 \text{ Hz} - 59.80 \text{ Hz} \\
 &= \mathbf{0.17 \text{ Hz}}
 \end{aligned}$$

$$\begin{aligned}
 &\text{Expected MW Response Capacity} \\
 &= \text{Static Gain} \times \text{Frequency Change} \\
 &= 24.22 \text{ MW/Hz} \times 0.17 \text{ Hz} \\
 &= \mathbf{4.12 \text{ MW}}
 \end{aligned}$$

$$\begin{aligned}
 &\text{Response Accuracy} \\
 &= \frac{\text{Actual MW Response Capacity}}{\text{Expected MW Response Capacity}} \times 100\% \\
 &= \frac{3.25 \text{ MW}}{4.12 \text{ MW}} \times 100\% \\
 &= \mathbf{78.88 \% \text{ (NON-COMPLIANT)}}
 \end{aligned}$$



**Scenario 2:** The System Frequency breaches the upper deadband threshold, the reserve facility needs to react by decreasing generation to correct the frequency.



**Fig 6.0 Sample Illustration when System Frequency breached Upper Deadband**

For this example, the following are the reserve facility's certified characteristics:

- Droop Setting: 4.5%
- Deadband Settings: 0.03 Hz
- Rated Capacity: 65.4 MW

Given:

- Highest Actual MW Output: 15.78 MW (within the 20-second period)
- Lowest Actual MW Output: 15.53 MW (within the 20-second period)
- MW Output Prior to FDE: 23.44 MW
- Highest Frequency during FDE: 60.41 Hz

### Computation:

$$\begin{aligned}
 &\text{Actual MW Response Capacity} \\
 &= \text{Lowest Actual MW Output} - \text{MW Output Prior to Frequency-Driven Event} \\
 &= 15.53 \text{ MW} - 23.44 \text{ MW} \\
 &= \mathbf{-7.91 \text{ MW}}
 \end{aligned}$$

$$\begin{aligned}
 &\text{Static Gain} \\
 &= \frac{\text{Rated Capacity}}{\text{Droop Setting} \times \text{Nominal Frequency}} \\
 &= \frac{65.4 \text{ MW}}{4.5 \% \times 60 \text{ Hz}} \times 100\% \\
 &= \mathbf{24.22 \text{ MW/Hz}}
 \end{aligned}$$

$$\begin{aligned}
 &\text{Frequency Prior to Frequency-Driven Event} \\
 &= \text{Nominal Frequency} \pm \text{Deadband Setting} \\
 &= 60 \text{ Hz} + 0.03 \text{ Hz} \\
 &= \mathbf{60.03 \text{ Hz}}
 \end{aligned}$$

$$\begin{aligned}
 &\text{Frequency Change} \\
 &= \text{Frequency Prior to Frequency-Driven Event} - \text{Highest Frequency During Frequency-Driven Event} \\
 &= 60.03 \text{ Hz} - 60.41 \text{ Hz} \\
 &= \mathbf{-0.38 \text{ Hz}}
 \end{aligned}$$

$$\begin{aligned}
 &\text{Expected MW Response Capacity} \\
 &= \text{Static Gain} \times \text{Frequency Change} \\
 &= 24.22 \text{ MW/Hz} \times -0.38 \text{ Hz} \\
 &= \mathbf{-9.20 \text{ MW}}
 \end{aligned}$$

$$\begin{aligned}
 &\text{Response Accuracy} \\
 &= \frac{\text{Actual MW Response Capacity}}{\text{Expected MW Response Capacity}} \times 100\% \\
 &= \frac{-7.91 \text{ MW}}{-9.20 \text{ MW}} \times 100\% \\
 &= \mathbf{85.99\% \text{ (COMPLIANT)}}
 \end{aligned}$$

### 3. Illustration for the Capping the Expected MW Response Capacity to Reserve Schedule

In cases where the Expected MW Response Capacity exceeds the Reserve Schedule, the Expected MW Response shall be capped at the Reserve Schedule. The formula for Response Accuracy is as follows:

$$= \frac{\text{Actual MW Response Capacity}}{\text{Expected MW Response Capacity}} \times 100\%$$

The following values are examples to illustrate the scenario:

Certified Capacity	Reserve Schedule	Actual MW Response	Expected MW Response
30	10	25	50

As a result, the Response Accuracy will differ based on the said conditions:

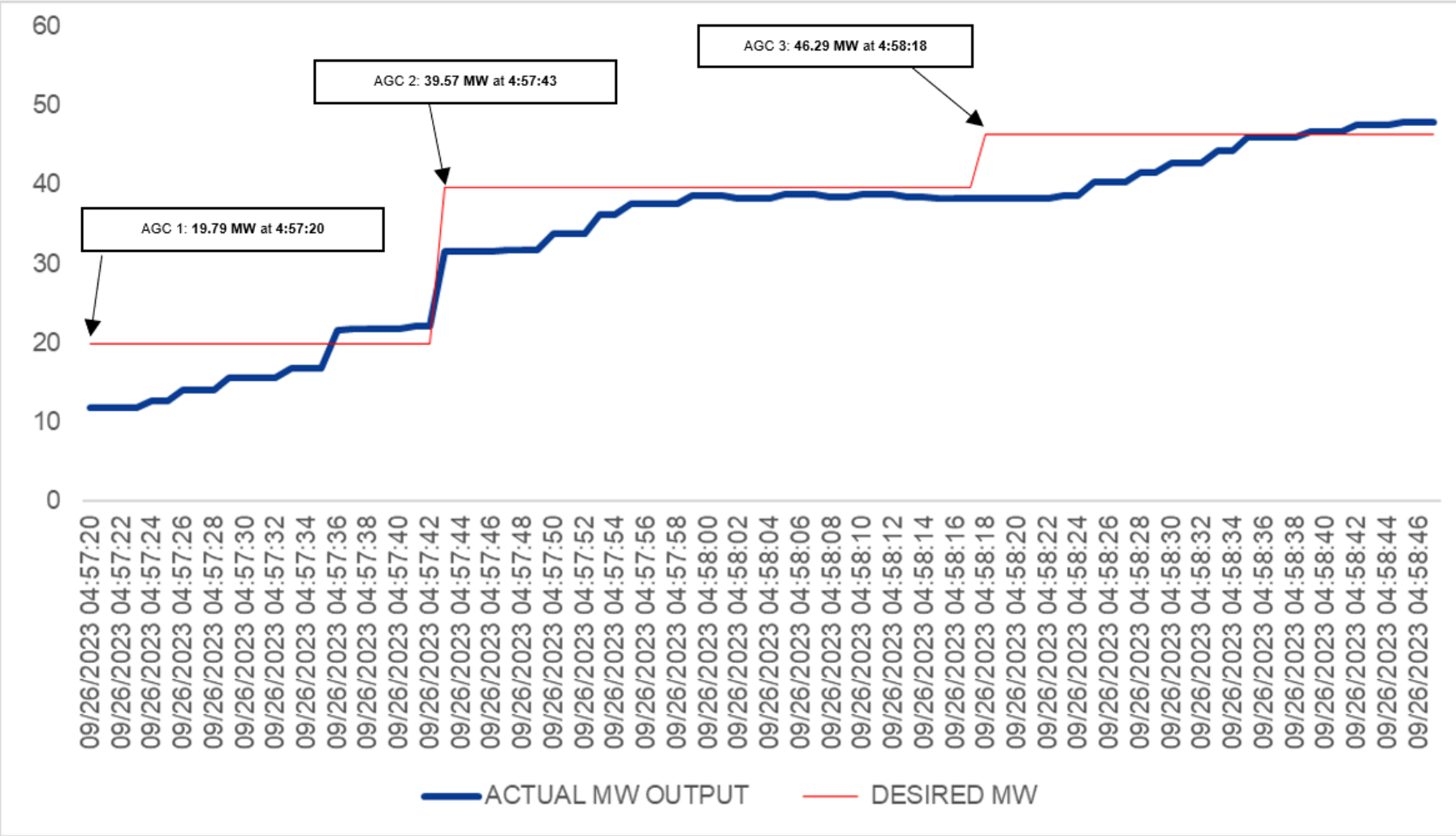
Response Accuracy Calculation:

Response Accuracy % 1:  
= (25 / 50) × 100 = 50% **(NON-COMPLIANT)**

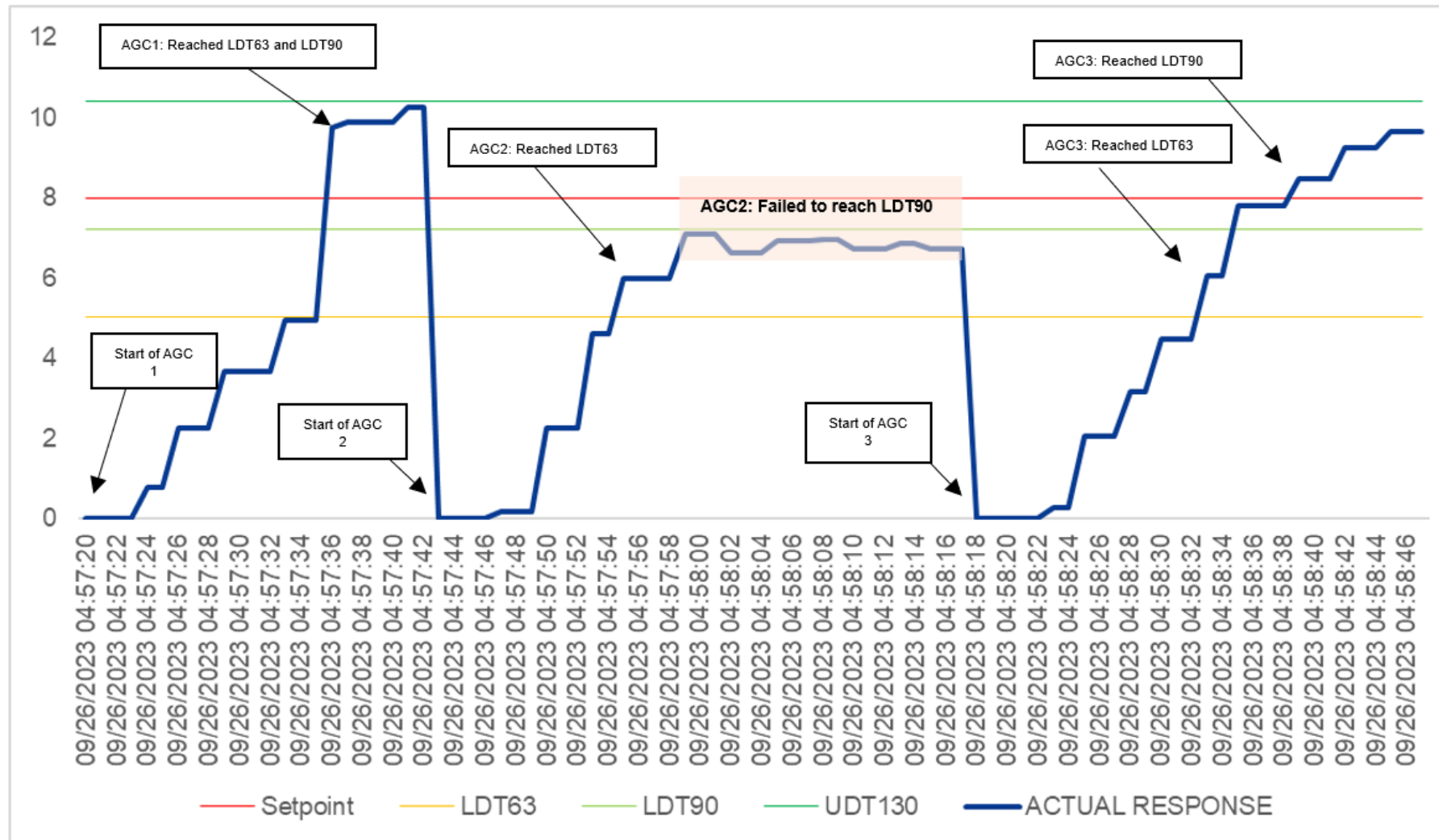
Response Accuracy % 2: **(Capping the Expected MW Response Capacity to Reserve Schedule)**  
= (25 / 10) × 100 = 250% **(COMPLIANT)**

Response Accuracy % 1	Response Accuracy % 2
<b>50%</b>	<b>250%</b>

4. Illustration for the determination of Percentage (%) of Compliance of ASP on AGC



**Fig 7.0 Sample series of AGC Commands**



**Fig 8.0 Equivalent Setpoint and Actual Response**

Summary of illustration on Figure 8:

- AGC 1 LDT63 and LDT90 were reached within 16 seconds
- AGC 2 LDT63 reached within 12 seconds
- AGC 2 failed to reach LDT90

- AGC 3 LDT63 reached within 15 seconds
- AGC 3 LDT63 reached within 17 seconds

Since required levels of AGC Command 1 and AGC Command 3 have been reached within the required duration as stated in section 5.7, therefore, AGC Command 1 and AGC Command 3 are compliant

On the other hand, the generator failed to reach all the required levels of AGC Command 2, therefore, AGC Command 2 is non-compliant.

There is a total of 3 Commands in the above example

Total Commands = 3

Total Compliant Commands = 2

$$\% \text{ Compliance} = \frac{\text{No. of Compliant AGC Commands}}{\text{No. of AGC Commands}} \times 100 \%$$

$$\% \text{ Compliance} = \frac{2}{3} \times 100 \%$$

$$\% \text{ Compliance} = 66.67 \% \text{ (NON COMPLIANT)}$$