WHOLESALE ELECTRICITY SPOT MARKET
RULES CHANGE COMMITTEE

RESOLUTION NO. 2019-13

Proposed Amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs to Include Additional CVCs to Reflect the Dispatch Hierarchy of Self-Scheduled Generation

WHEREAS, the Independent Electricity Market Operator of the Philippines (IEMOP) submitted to the Rules Change Committee (RCC) its proposed amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs on 10 June 2019;

WHEREAS, the proposal aims to include additional CVCs to reflect the dispatch and curtailment hierarchy for non-scheduled, priority dispatch and must-dispatch generating unit classifications – collectively called self-scheduled generating units;

WHEREAS, during the 153rd RCC Meeting held on 21 June 2019, IEMOP presented the proposed amendments to the RCC for approval for publication in the PEMC website;

WHEREAS, following the presentation and request, the RCC approved the publication of the proposed amendments in the PEMC website to solicit comments from WESM stakeholders, giving them until 06 August 2019 or thirty (30) working days from the date of publication (25 June 2019) to submit comments on the matter;

WHEREAS, SPC Power Corporation (SPC) submitted comments to the proposal;

WHEREAS, during the 155th RCC Meeting held on 16 August 2019, the RCC deliberated on the proposal giving due consideration to the submitted comments and the corresponding responses of the proponent;

WHEREAS, the RCC agreed to reflect in the schedule of CVCs, the current ancillary services categorizations (e.g. regulating reserve, contingency reserve and dispatchable reserve) in order to be aligned with the recent issuance of the DOE on the same;

WHEREAS, there being no other matters left to be deliberated, the RCC approved the Proposed Amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs to Include Additional CVCs to Reflect the Dispatch Hierarchy of Self-Scheduled Generation;

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

RESOLVED, that the Rules Change Committee approves and adopts the Proposed Amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs to Include Additional CVCs to Reflect the Dispatch Hierarchy of Self-Scheduled Generation (Annex), thereby amending Issue 6.0;

RESOLVED FURTHER, that the Proposed Amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs to Include Additional CVCs to Reflect the Dispatch Hierarchy of Self-Scheduled Generation are hereby endorsed to the PEM Board for approval and subsequent transmittal to the DOE for promulgation;

Done this 16 August 2019, Pasig City.

Approved by: **THE RULES CHANGE COMMITTEE**	
Independent Members:	
[redacted] **[redacted]** Chairperson	[redacted] **Francisco L.R. Castro, Jr.**
[redacted] **Allan C. Nerves**	[redacted] **Concepcion I. Tanglao**
Generation Sector Members:	
[redacted] **Dixie Anthony R. Banzon** Masinloc Power Partners Co. Ltd. (MPPCL)	[redacted] **[redacted]** Power Sector Assets and Liabilities Management Corporation (PSALM)
Jose Ildebrando B. Ambrosio NorthWind Power Development Corp. (NorthWind)	[redacted] **Cherry A. Javier** Aboitiz Power Corp. (APC)
Distribution Sector Members:	
[redacted] **[redacted]** Cebu III Electric Cooperative, Inc. (CEBECO3)	[redacted] **Ryan S. Morales** Manila Electric Company (MERALCO)
[redacted] **Ricardo G. Gumalal** Iligan Light and Power, Inc. (ILPI)	[redacted] **Jose P. Santos** Ilocos Norte Electric Cooperative, Inc. (INEC)
Supply Sector Member:	
[redacted] **Lorreto H. Rivera** TeaM (Philippines) Energy Corporation (TPEC)	

[redacted]

Market Operator Member:
[redacted] **Isidro E. Cacho, Jr.** Independent Electricity Market Operator of the Philippines (IEMOP)
System Operator Member:
[redacted] **Ambrocio R. Rosales** National Grid Corporation of the Philippines (NGCP)

[redacted]

Proposed Amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs to Include Additional CVCs to Reflect the Dispatch Hierarchy of Self-Scheduled Generation

A. WESM Rules

Title	Clause	Provision	Proposed Amendment	Rationale
Constraint Violation Coefficient – Order of Constraint Violation Coefficients	4.3.1	The order of relaxing *soft constraints* shall be set such that *constraints* resulting in the lowest reduction in the capability of the *network, load* or *generating units* shall be allowed to occur first, as follows: a. Tertiary Reserve Requirement Constraint b. Primary Reserve Requirement Constraint c. Nodal VoLL or Nodal Energy Balance Constraint d. System Energy Balance Constraint e. Self-Scheduled Generation Constraint f. Thermal Contingency Constraint – Transformer g. Thermal Contingency Constraint – Line h. Thermal Contingency Constraint – Branch Group i. Secondary Reserve Requirement Constraint j. Thermal Base Case Constraint – Transformer k. Thermal Base Case Constraint – Line l. Thermal Base Case Constraint – Branch Group	The order of relaxing *soft constraints* shall be set such that *constraints* resulting in the lowest reduction in the capability of the *network, load* or *generating units* shall be allowed to occur first, as follows: a. Tertiary**/Dispatchable** Reserve Requirement Constraint b. Primary**/Contingency** Reserve Requirement Constraint c. Nodal VoLL or Nodal Energy Balance Constraint d. System Energy Balance Constraint e. Self-Scheduled Generation Constraint **– Non-Scheduled Generation** f. **Self-Scheduled Generation Constraint – Priority Dispatch Generation** g. **Self-Scheduled Generation Constraint – Must Dispatch Generation** **h.** ~~f.~~ Thermal Contingency Constraint – Transformer **i.** ~~g.~~ Thermal Contingency Constraint – Line **j.** ~~h.~~ Thermal Contingency Constraint – Branch Group	• To distinguish among non-scheduled, priority dispatch and must dispatch generation as these three (3) self-scheduled generation categories have a set priority in dispatch and curtailment. The order of CVCs associated with these classifications are arranged in line with WESM Rules provision on the hierarchy for dispatch target curtailment (WESM Rules Clause 3.6.1.8). • To reflect classification of ancillary services based on the DOE issuances

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Proposed Amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs to Include Additional CVCs to Reflect the Dispatch Hierarchy of Self-Scheduled Generation

Title	Clause	Provision	Proposed Amendment	Rationale
			k. ~~i.~~ Secondary/**Regulating** Reserve Requirement Constraint **l.** ~~j.~~ Thermal Base Case Constraint – Transformer **m.** ~~k.~~ Thermal Base Case Constraint – Line **n.** ~~l.~~ Thermal Base Case Constraint – Branch Group	
Constraint Violation Coefficient – Order of Constraint Violation Coefficients	4.3.4	(refer to Annex A)	(refer to Annex A)	The CVC table is proposed to be revised to reflect the suggested changes in CVC hierarchy (Sec 4.3.1). The corresponding coefficients for each soft constraint are also recommended to be updated to reflect the change in CVC order. The values of the CVCs whose rankings moved up were also revised based on recommendations during the certification audit and observations during the conduct of parallel operations program. In general, values of the CVCs should be set such that the sum of the

Proposed Amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs to Include Additional CVCs to Reflect the Dispatch Hierarchy of Self-Scheduled Generation

Title	Clause	Provision	Proposed Amendment	Rationale
				values of possible CVC combinations will not be equal to a higher single CVC value. For example, since there are CVCs set at 800,000 and 1,600,000, there should be no CVC set at 2,400,000 (800,000 + 1,600,000); otherwise, the MDOM may choose to violate the higher CVC instead of the two lower CVCs, which is the expected result.
Automatic Pricing Re-Run Parameters	5.3.1	(refer to Annex A)	(refer to Annex A)	The Automatic Pricing Re-Run Parameters are proposed to be revised to reflect the suggested changes in CVC table (Sec 4.3.4).

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Proposed Amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs to Include Additional CVCs to Reflect the Dispatch Hierarchy of Self-Scheduled Generation

ANNEX A

Proposed Amendments on Section 4.3.4 of WESM Manual on Constraint Violation Coefficients and Pricing Re-Runs

Provision

4.3.4 The following table provides the *constraint violation coefficients*, which is reflective of the order of relaxing *soft constraints* established in Section 4.3.1 of this *Market Manual*, and the corresponding action by the *System Operator*:

Order	Constraint Violation Coefficient Name	CVC	SO Action
1	Tertiary Reserve Requirement Constraint	100,000	None
2	Primary Reserve Requirement Constraint	200,000	None
3	Nodal VoLL or Nodal Energy Balance Constraint	800,000	Re-dispatch generation and/or drop load as necessary.
4	System Energy Balance Constraint	1,300,000	For over-generation, identify

Proposed Amendment

4.3.4 The following table provides the *constraint violation coefficients*, which is reflective of the order of relaxing *soft constraints* established in Section 4.3.1 of this *Market Manual*, and the corresponding action by the *System Operator*:

Order	Constraint Violation Coefficient Name	CVC	SO Action
1	Tertiary**/Dispatchable** Reserve Requirement Constraint	100,000	None
2	Primary**/Contingency** Reserve Requirement Constraint	200,000	None
3	Nodal VoLL or Nodal Energy Balance Constraint	800,000	Re-dispatch generation and/or drop load as necessary.
4	System Energy Balance Constraint	1,300,000	For over-generation, identify generating units to be shut down to eliminate

Proposed Amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs to Include Additional CVCs to Reflect the Dispatch Hierarchy of Self-Scheduled Generation

Provision				Proposed Amendment			
			generating units to be shut down to eliminate excess capacity. For under-generation, identify must-run units that can be dispatched or drop load as necessary.				excess capacity. For under-generation, identify must-run units that can be dispatched or drop load as necessary.
5	Self-Scheduled Generation Constraint	1,400,000	The projected output or schedule of loading level of the relevant generating unit(s) shall be curtailed.	5	Self-Scheduled Generation Constraint **– Non-Scheduled Generation**	1,400,000	The ~~projected output or~~ schedule of loading level of the relevant **non-scheduled** generating unit(s) shall be curtailed.
6	Thermal Contingency Constraint – Transformer	1,500,000	Re-dispatch generation and/or drop load as necessary.	**6**	**Self-Scheduled Generation Constraint –**	**1,500,000**	The projected output ~~or~~ ~~schedule of~~
7	Thermal Contingency	1,500,000					

Proposed Amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs to Include Additional CVCs to Reflect the Dispatch Hierarchy of Self-Scheduled Generation

Provision				Proposed Amendment			
	Constraint – Line				**Priority Dispatch Generation**		~~loading level~~ of the relevant **priority dispatch** generating unit(s) shall be curtailed.
8	Thermal Contingency Constraint – Branch Group	2,000,000		**7**	**Self-Scheduled Generation Constraint – Must Dispatch Generation**	**1,600,000**	The projected output ~~or schedule of loading level~~ of the relevant **must dispatch** generating unit(s) shall be curtailed.
9	Secondary Reserve Requirement Constraint	3,500,000	Re-dispatch generation and/or drop load as necessary.	~~6~~ **8**	Thermal Contingency Constraint – Transformer	~~1,500,000~~ **2,500,000**	Re-dispatch generation and/or drop load as necessary.
10	Thermal Base Case Constraint – Transformer	4,000,000	Re-dispatch generation and/or drop load as necessary.	~~7~~ **9**	Thermal Contingency Constraint – Line	~~1,500,000~~ **2,500,000**	
11	Thermal Base Case Constraint – Line	4,000,000		~~8~~ **10**	Thermal Contingency Constraint – Branch Group	~~2,000,000~~ **3,000,000**	
12	Thermal Base Case Constraint – Branch Group	4,500,000					

Proposed Amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs to Include Additional CVCs to Reflect the Dispatch Hierarchy of Self-Scheduled Generation

<table>
<tr><th>Provision</th><th>Proposed Amendment</th></tr>
<tr><td></td><td>
<table>
<tr><td>~~9~~ <u>11</u></td><td>Secondary<u>/Regulating</u> Reserve Requirement Constraint</td><td>~~3,500,000~~ <u>5,600,000</u></td><td>Re-dispatch generation and/or drop load as necessary.</td></tr>
<tr><td>~~10~~ <u>12</u></td><td>Thermal Base Case Constraint – Transformer</td><td>~~4,000,000~~ <u>6,000,000</u></td><td rowspan="3">Re-dispatch generation and/or drop load as necessary.</td></tr>
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<tr><th>Order</th><th>Constraint Violation Coefficient Name</th><th>CVC</th><th>Violation Variable Value</th><th>Delta</th><th>Constraint Relaxation during Pricing Re-Run</th><th>Re-run Price</th></tr>
<tr><td>1</td><td>Tertiary Reserve Require</td><td>100,000</td><td>x</td><td>0.1</td><td>x + delta</td><td>EDP AND RP</td></tr>
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<tr><td>1</td><td>Tertiary<u>/Dispatchable</u> Reserve</td><td>100,000</td><td>x</td><td>0.1</td><td>x + delta</td><td>EDP AND RP</td></tr>
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Provision						
	ment Constraint					
2	Primary Reserve Requirement Constraint	200,000	x	0.1	x + delta	EDP AND RP
3	Nodal Energy Balance Constraint	800,000	x	0.1	x + delta	EDP AND RP
4	System Energy Balance Constraint	1,300,000	x	0	delta	Excess Price for over-generation
						Shortage Price for under-generation

Proposed Amendment						
	Requirement Constraint					
2	Primary/**Contingency** Reserve Requirement Constraint	200,000	x	0.1	x + delta	EDP AND RP
3	Nodal Energy Balance Constraint	800,000	x	0.1	x + delta	EDP AND RP
4	System Energy Balance Constraint	1,300,000	x	0	delta	Excess Price for over-generation
						Shortage Price for under-generation
5	Self-Scheduled Generation Constraint – **Non-**	1,400,000	x	0.1	x + delta	EDP AND RP

Proposed Amendments to the WESM Manual on Constraint Violation Coefficients (CVC) and Pricing Re-Runs to Include Additional CVCs to Reflect the Dispatch Hierarchy of Self-Scheduled Generation

Provision						
5	Self-Scheduled Generation Constraint	1,400,000	x	0.1	x + delta	EDP AND RP
6	Thermal Contingency Constraint – Transformer	1,500,000	x	0.1	x + delta	EDP AND RP
7	Thermal Contingency Constraint – Line	1,500,000	x	0.1	x + delta	EDP AND RP
8	Thermal Contingency Constraint – Branch Group	2,000,000	x	0.1	x + delta	EDP AND RP
9	Secondary Reserve	3,500,000	x	0.1	x + delta	EDP AND RP

Proposed Amendment						
	Scheduled Generation					
6	**Self-Scheduled Generation Constraint – ~~Non-~~Priority Dispatch Generation**	**1,500,000**	**x**	**0.1**	**x + delta**	**EDP AND RP**
7	**Self-Scheduled Generation Constraint – Must Dispatch Generation**	**1,600,000**	**x**	**0.1**	**x + delta**	**EDP AND RP**
~~6~~ **8**	Thermal Contingency Constraint – Transformer	~~1,500,000~~ **2,500,000**	x	0.1	x + delta	EDP AND RP
~~7~~ **9**	Thermal Contingency Constraint – Line	~~1,500,000~~ **2,500,000**	x	0.1	x + delta	EDP AND RP
~~8~~ **10**	Thermal Contingency Constraint – Branch Group	~~2,000,000~~ **3,000,000**	x	0.1	x + delta	EDP AND RP

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Provision							Proposed Amendment						
	Requirement Constraint						~~9~~ **11**	Secondary/**Regulating** Reserve Requirement Constraint	~~3,500,000~~ **5,600,000**	x	0.1	x + delta	EDP AND RP
10	Thermal Base Case Constraint – Transformer	4,000,000	x	0.1	x + delta	EDP AND RP	~~10~~ **12**	Thermal Base Case Constraint – Transformer	~~4,000,000~~ **6,000,000**	x	0.1	x + delta	EDP AND RP
11	Thermal Base Case Constraint – Line	4,000,000	x	0.1	x + delta	EDP AND RP	~~11~~ **13**	Thermal Base Case Constraint – Line	~~4,000,000~~ **6,000,000**	x	0.1	x + delta	EDP AND RP
12	Thermal Base Case Constraint – Branch Group	4,500,000	x	0.1	x + delta	EDP AND RP	~~12~~ **14**	Thermal Base Case Constraint – Branch Group	~~4,500,000~~ **6,500,000**	x	0.1	x + delta	EDP AND RP

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