

## Notice of Market Rules Modification

<b>Paper No.:</b>	EMC/RCP/141/2024/RC387
<b>Rule Reference:</b>	Chapter 6, Sec 7.5.1.5, 7.6.1A; Appendix 6D, Sec D.3, D.8.3, D.8.4, D.12.1, D.12.2, D.12.10, D.12.11, D.12.12, D.12.13
<b>Proposer:</b>	EMC, Market Admin
<b>Date Received by EMC:</b>	15 April 2024
<b>Status:</b>	Approved by EMA
<b>Effective Date:</b>	TBC

This paper proposes enhancements to the fallback mechanisms for StartGeneration and PriorScheduledPurchase, thereby improving scheduling resiliency.

Relying on the latest available Short-Term Schedule and Pre-Dispatch Schedule for fallback values of StartGeneration and PriorScheduledPurchase will be more reflective of actual physical conditions, thus resulting in more accurate dispatch schedules.

Rule modifications are proposed to enhance the fallback mechanisms for StartGeneration and PriorScheduledPurchase.

The RCP discussed these proposals at its 141<sup>st</sup> meeting and the panel **unanimously supported** the proposed recommendations.

<b>Date considered by Rules Change Panel:</b>	23 May 2024
<b>Date considered by EMC Board:</b>	25 June 2024
<b>Date considered by Energy Market Authority:</b>	26 July 2024
<b>Proposed rule modification:</b>	See attached paper
<b>Reasons for rejection/referral back to Rules Change Panel (if applicable):</b>	

PAPER NO. : **EMC/BD/03/2024/02**

RCP PAPER NO. : **EMC/RCP/141/2024/RC387**

SUBJECT : **ENHANCEMENT TO FALLBACK MECHANISMS FOR STARTGENERATION AND PRIORSCHEDULEDPURCHASE**

FOR : **DECISION**

PREPARED BY : **LIM CHERN YUEN**  
**SENIOR ECONOMIST**

REVIEWED BY : **POA TIONG SIAW**  
**SVP, MARKET ADMINISTRATION**

DATE OF MEETING : **23<sup>rd</sup> MAY 2024**

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### **Executive Summary**

This paper proposes enhancements to the fallback mechanisms for StartGeneration and PriorScheduledPurchase, thereby improving scheduling resiliency.

Relying on the latest available Short-Term Schedule and Pre-Dispatch Schedule for fallback values of StartGeneration and PriorScheduledPurchase will be more reflective of actual physical conditions, thus resulting in more accurate dispatch schedules.

Rule modifications are proposed to enhance the fallback mechanisms for StartGeneration and PriorScheduledPurchase. At the 141<sup>st</sup> RCP meeting held on 23<sup>rd</sup> May 2024, the RCP **unanimously supported** EMC's recommendations.

The RCP recommends that the EMC Board:

- a) **adopt** the proposed rule modifications as set out in Annex 1; and
- b) **seek the EMA's approval** of the proposed rule modifications as set out in Annex 1.

## 1. Introduction

This paper assesses proposals related to enhancing the fallback mechanisms for two parameters used in market clearing (i.e., StartGeneration and PriorScheduledPurchase), in order to improve scheduling resiliency.

## 2. Background

### 2.1 What is StartGeneration, and what is it used for?

StartGeneration is a parameter within the Market Clearing Engine (MCE), typically provided by the PSO to EMC via automatic transmission of the Network Status File 10 minutes before each half-hour dispatch period<sup>1</sup>. StartGeneration reflects the instantaneous MW output of every Generation Registered Facility (GRF) subject to dispatch, as of T-10 minutes.

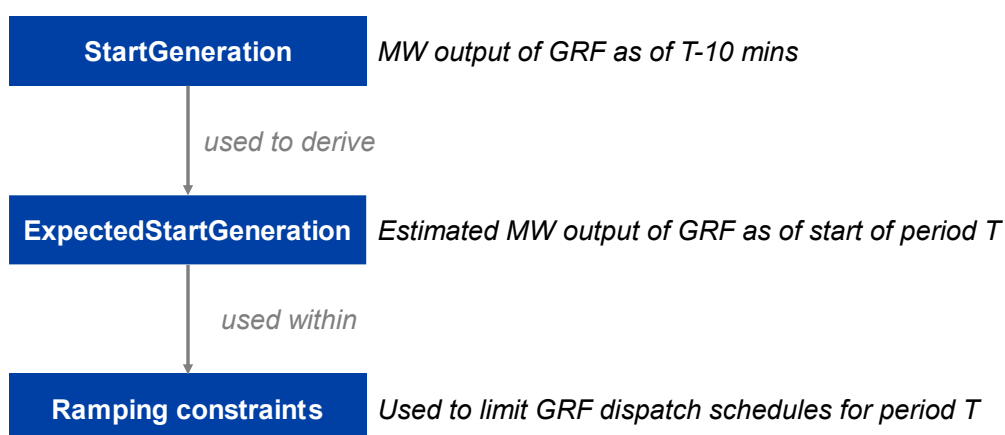
Subsequently, ExpectedStartGeneration is estimated based on StartGeneration. ExpectedStartGeneration represents an estimate of the instantaneous MW output of every GRF, as of the start of each period T (i.e., T-0 minutes).<sup>2</sup>

Subsequently, ExpectedStartGeneration is used as a parameter within ramping constraints, to make sure that scheduled quantities (at the end of each period) are feasible and do not require excessive ramping up/down of GRFs from their start-of-period ExpectedStartGeneration levels. In particular,

- $\text{GenerationEndMax} = \text{ExpectedStartGeneration} + (\text{UpRampRate} \times 30 \text{ mins})$
- $\text{GenerationEndMin} = \text{ExpectedStartGeneration} - (\text{DownRampRate} \times 30 \text{ mins})$ <sup>3</sup>

A broad overview of the relationship between StartGeneration, ExpectedStartGeneration and ramping constraints is illustrated in Figure 1 below.

**Figure 1: Relationship between StartGeneration, ExpectedStartGeneration and ramping constraints**



In sum, StartGeneration is a parameter within the MCE that eventually feeds into ramping constraints, which may affect dispatch schedules. StartGeneration values are typically provided by the PSO to EMC 10 minutes before every period.

<sup>1</sup> StartGeneration is defined in Market Rules Appendix 6D Table D.3 Parameters

<sup>2</sup> The derivation of ExpectedStartGeneration based on StartGeneration is specified in Market Rules Appendix 6D Section D.12.5

<sup>3</sup> These calculations are specified in Market Rules Appendix 6D Sections D.12.6 and D.12.7

## 2.2 What is PriorScheduledPurchase, and what is it used for?

Similar to ExpectedStartGeneration that applies to GRFs, there is an analogous parameter for Load Registered Facilities (LRFs) participating in Demand Response – the PriorScheduledPurchase parameter reflects the starting MW consumption of an LRF, as of the start of each period<sup>4</sup>.

Subsequently, PriorScheduledPurchase is used as a parameter within ramping constraints, to make sure that scheduled quantities (at the end of each period) are feasible and do not require excessive ramping up/down of LRFs<sup>5</sup>.

## 2.3 Dispatch schedules published by EMC

On a regular basis, EMC produces the following dispatch schedules in accordance with the Market Rules, as detailed in Table 1 below.

**TABLE 1: Schedules published by EMC**

Referred to in the Market Rules as	Real Time Schedule (RTS)	Short-Term Schedule (STS)	Pre-Dispatch Schedule (PDS)	Market Outlook Scenario (MOS)
<b>Also known as</b>	<i>Dispatch Run (DPR)</i>	<i>Look Ahead Run (LAR)</i>	<i>Day Ahead Run (DAR)</i>	<i>Week Ahead Run (WAR)</i>
<b>Horizon</b>	1 period (Period T)	12 periods (6 hours)	24-72 periods (12-36 hours)	288 periods (6 days)
<b>Frequency of publication</b>	Every half hour	Every half hour	Every 2 hours	Every day
<b>Starts running at</b>	5 minutes before the period	34 minutes before the first forecasted period	135 minutes before the first forecasted period	2am of each day
<b>Type of schedule</b>	Binding dispatch schedule	Forecast schedule	Forecast schedule	Forecast schedule

To derive each of RTS/STS/PDS/MOS, initial values for StartGeneration and PriorScheduledPurchase are required.

## 2.4 Current fallback mechanisms for StartGeneration and PriorScheduledPurchase

### 2.4.1 StartGeneration for RTS and the first period involved in the calculation of STS<sup>6</sup>

Each GRF's StartGeneration parameter to be used for RTS and the first period involved in the calculation of STS is currently based on:

- (1) the value provided by PSO within the Network Status File 10 minutes before each period;
- (2) otherwise, scheduled end-of-period generation in the prior period's RTS;
- (3) otherwise, a value of zero for that GRF.

<sup>4</sup> Comparing against StartGeneration, there is no analogous parameter that reflects instantaneous MW consumption of every LRF, as of T-10 minutes.

<sup>5</sup> These calculations are specified in Market Rules Appendix 6D Sections D.12.8 and D.12.9

<sup>6</sup> Detailed in Market Rules Appendix 6D, Sections D.8.3 and D.12.1.

#### 2.4.2 *StartGeneration for the first period involved in the calculation of PDS*<sup>7</sup>

Meanwhile, each GRF's StartGeneration parameter to be used for the first period involved in the calculation of PDS is currently based on:

- (1) scheduled end-of-period generation in the prior period's RTS;
- (2) otherwise, scheduled end-of-period generation in the RTS 2 periods prior<sup>8</sup>.

#### 2.4.3 *PriorScheduledPurchase for RTS and the first period involved in the calculation of STS*<sup>9</sup>

Each LRF's PriorScheduledPurchase parameter to be used for RTS and the first period involved in the calculation of STS is currently based on:

- (1) scheduled end-of-period consumption in the prior period's RTS;
- (2) otherwise, the sum of energy bid quantities for the first period of the respective RTS/STS.

#### 2.4.4 *PriorScheduledPurchase for the first period involved in the calculation of PDS*<sup>10</sup>

Meanwhile, each LRF's PriorScheduledPurchase parameter to be used for the first period involved in the calculation of PDS is currently based on:

- (1) scheduled end-of-period consumption in the prior period's RTS;
- (2) otherwise, the sum of energy bid quantities for the first period of the PDS.

### 3. Analysis

#### 3.1 Drawbacks of current fallback mechanisms for StartGeneration and PriorScheduledPurchase

##### 3.1.1 *StartGeneration – fallback values of zero are unlikely to reflect actual generation levels*

Based on Section 2.4.1 above, a final fallback value for StartGeneration of zero is always available to the MCE in the RTS and STS, even when there are no Network Status Files or preceding real-time schedules. This would ensure that the MCE will always have the required parameters to produce a schedule, and the RTS/STS run will not fail due to unavailable input parameters.

However, a StartGeneration value of zero is unlikely to reflect physical conditions (i.e., the actual generation level of a GRF), resulting in inaccurate dispatch schedules. For example, using zero as the StartGeneration value for a particular GRF will likely result in an unrealistically low ExpectedStartGeneration value, which may severely restrict its scheduled energy quantity<sup>11</sup>, and likely cause the GRF to be ineligible to provide regulation<sup>12</sup>.

<sup>7</sup> Detailed in Market Rules Appendix 6D, Sections D.8.4 and D.12.2.

<sup>8</sup> As detailed in Market Rules Section D.8.4, this fallback mechanism is not specified for initial values of StartGeneration for PDS for multi-unit facilities.

<sup>9</sup> Detailed in Market Rules Appendix 6D, Sections D.12.10.1 and D.12.10.4.

<sup>10</sup> Detailed in Market Rules Appendix 6D, Sections D.12.10.2 and D.12.10.4.

<sup>11</sup> Due to ramping constraints explained in Section 2.1 earlier.

<sup>12</sup> Market Rules Appendix 6D, Section D.13A.1.2 states that to be dispatched for regulation, the GRF's ExpectedStartGeneration needs to be greater than or equal to the RegulationMin parameter for that GRF, which is typically a positive MW value (except for ESS, which may have RegulationMin = 0).

### *3.1.2 PriorScheduledPurchase – fallback values based on sum of energy bid quantities may not reflect actual start-of-period consumption levels*

Based on Sections 2.4.3 and 2.4.4 above, fallback values for PriorScheduledPurchase are based on the sum of energy bid quantities for period T, which are certainly available to the MCE, as LRFs always need to have bids submitted for every period (bid quantity can equal to zero).

However, a PriorScheduledPurchase value equal to the sum of energy bid quantities may not reflect physical conditions (i.e., the actual start-of-period consumption level of an LRF), resulting in inaccurate dispatch schedules.

### *3.1.3 StartGeneration and PriorScheduledPurchase – fallback values depend on RTS*

All the fallback mechanisms in Section 2.4 above have a dependency on a prior period's RTS, which may not always be available. For example, on 30 January 2024, due to NEMS system maintenance (Disaster Recovery Preparedness exercise), RTS could not be produced for periods 39 and 40. When the PDS with starting period 45 was triggered to run, this PDS schedule could not be produced as RTS for periods 39 and 40 were unavailable.

### *3.1.4 StartGeneration and PriorScheduledPurchase – additional four leading periods need to be calculated for PDS*

Furthermore, as the PDS starts running 135 minutes before period T, the PDS needs to calculate schedules for an additional 4 leading periods. This is illustrated for StartGeneration in the example below.

- The PDS for periods starting 10pm onwards has to start being generated at 7.45pm (135 minutes beforehand, as indicated in Table 1 earlier).
- As of 7.45pm, end-of-period generation for RTS has only been generated up to 8pm (i.e., period spanning 7.30 to 8pm).
- In order to derive StartGeneration for the period starting 10pm, end-of-period generation has to be forecast for additional periods ending at 8.30pm, 9pm, 9.30pm and 10pm (this last end-of-period value is the StartGeneration value to be used for the first period of the PDS starting 10pm).

The calculation of an additional 4 leading periods for every PDS takes up valuable IT resources (i.e., server run time), with limited benefits (i.e., they are not published; they are solely to attain StartGeneration and PriorScheduledPurchase values for the PDS).

## **3.2 Proposed solution**

### *3.2.1 StartGeneration for RTS and the first period involved in the calculation of STS*

In order to decrease the likelihood of StartGeneration values defaulting to zero, the fallback mechanism can be augmented (i.e., adding steps 3 and 4 below) to be based on:

- (1) the value provided by PSO within the Network Status File 10 minutes before each period;
- (2) otherwise, scheduled end-of-period generation in the prior period's RTS;
- (3) otherwise, scheduled end-of-period generation for the prior period based on the latest available STS<sup>13</sup>;
- (4) otherwise, scheduled end-of-period generation for the prior period based on the latest available PDS;

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<sup>13</sup> Medium load scenario

- (5) otherwise, a value of zero for that GRF.

### 3.2.2 *StartGeneration for the first period involved in the calculation of PDS*

In order to remove the dependency of PDS on RTS, and remove the need for unpublished leading periods when generating PDS, the fallback mechanism can be amended to be based on:

- (1) scheduled end-of-period generation for the prior period based on the latest available STS<sup>14</sup>;
- (2) otherwise, scheduled end-of-period generation for the prior period based on the latest available PDS;
- (3) otherwise, a value of zero for that GRF.

### 3.2.3 *PriorScheduledPurchase for RTS and the first period involved in the calculation of STS*

In order to reduce the likelihood of relying on the sum of bid quantities, the fallback mechanism for PriorScheduledPurchase can be augmented (i.e., adding steps 2 and 3 below) to be based on:

- (1) scheduled end-of-period consumption in the prior period's RTS;
- (2) otherwise, scheduled end-of-period consumption for the prior period based on the latest available STS<sup>15</sup>;
- (3) otherwise, scheduled end-of-period consumption for the prior period based on the latest available PDS;
- (4) otherwise, the sum of energy bid quantities for the first period of the respective RTS/STS.

### 3.2.4 *PriorScheduledPurchase for the first period involved in the calculation of PDS*

In order to reduce the likelihood of relying on sum of bid quantities, the fallback mechanism for PriorScheduledPurchase can be amended to be based on:

- (1) scheduled end-of period consumption for the prior period based on the latest available STS<sup>16</sup>;
- (2) otherwise, scheduled end-of-period consumption for the prior period based on the latest available PDS;
- (3) otherwise, the sum of energy bid quantities for the first period of the PDS.

## 3.3 **Benefits of proposed solution**

There are three main benefits to the proposed solution in Section 3.2 above, as elaborated upon below.

### 3.3.1 *Enhanced scheduling resiliency*

Referring to Sections 3.2.1 (and 3.2.3) above, the proposed fallback mechanisms make it much less likely for StartGeneration (or PriorScheduledPurchase) values to default to zero (or to the sum of energy bid quantities).

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<sup>14</sup> Medium load scenario

<sup>15</sup> Medium load scenario

<sup>16</sup> Medium load scenario

Referring to Sections 3.2.2 (and 3.2.4) above, the proposed fallback mechanisms remove the dependency of PDS on RTS, instead relying on the latest available forecast schedules of the prior period (i.e., previous STS and PDS runs). As each forecast run covers multiple periods, there are multiple forecast runs containing any single period. Thus, it becomes highly unlikely that StartGeneration (or PriorScheduledPurchase) values cannot be obtained from previously generated dispatch schedules. This is also in line with generator operations in practice, where GRFs are expected to follow the latest available STS or PDS when the DPR is unavailable.

Lastly, a final fallback value of zero for StartGeneration will also be extended to the PDS, to ensure that the PDS run will not fail due to unavailability of StartGeneration values.

### 3.3.2 Streamlined scheduling process

Referring to Sections 3.2.2 and 3.2.4 above, the proposed fallback mechanisms no longer require the calculation of an additional 4 leading periods' schedules for every PDS. This would reduce the solve time and improve MCE performance.

### 3.3.3 Alignment of fallback mechanisms for StartGeneration and PriorScheduledPurchase

The proposed solution introduces greater consistency in fallback values used for both parameters.

## 4. Rule Modifications Required

Table 2 below provides a summary of proposed rule modifications to enhance the fallback mechanisms for StartGeneration and PriorScheduledPurchase.

Detailed modifications are set out in Annex 1.

**TABLE 2: Summary of Proposed Modifications**

S/N	Chapter / Section	Proposed Modifications	Reasons for Modifications
1	Chapter 6, Section 7.5.1.5	Make reference to Appendix 6D for how StartGeneration and PriorScheduledPurchase are determined (with fallback mechanisms) for the first period of each forecast schedule.	Avoid repeating fallback mechanism for StartGeneration and PriorScheduledPurchase.
2	Chapter 6, Section 7.6.1A	Specify that the PDS no longer includes unpublished leading periods.	Reduce the number of dispatch periods that the MCE has to run when generating a PDS.
3	Appendix 6D, Section D.3	Reference Sections D.12.10 to D.12.13 for determination of PriorScheduledPurchase.	Update section reference.
4	Appendix 6D, Section D.8.3	Augment fallback mechanism for StartGeneration, to include the latest available results from STS/PDS.	Augment the fallback mechanism for multi-unit facilities' StartGeneration for RTS and the first period involved in the calculation of STS, such that the order of preference is as below:



S/N	Chapter / Section	Proposed Modifications	Reasons for Modifications
			<ol style="list-style-type: none"> <li>1) Value provided by PSO in the most recently received status data on the network elements referred to in Section D.6.1.2</li> <li>2) Scheduled end-of-period generation in the prior period's real-time schedule</li> <li>3) Scheduled end-of-period generation for the prior period based on the latest available short-term schedule</li> <li>4) Scheduled end-of-period generation for the prior period based on the latest available pre-dispatch schedule</li> <li>5) Zero</li> </ol>
5	Appendix 6D, Section D.8.4	Amend fallback mechanism for StartGeneration to include the latest available results from STS/PDS.	<p>Amend the fallback mechanism for multi-unit facilities' StartGeneration for the first period involved in the calculation of PDS, such that the order of preference is as below:</p> <ol style="list-style-type: none"> <li>1) Scheduled end-of-period generation for the prior period based on the latest available short-term schedule</li> <li>2) Scheduled end-of-period generation for the prior period based on the latest available pre-dispatch schedule</li> <li>3) Zero</li> </ol>
6	Appendix 6D, Section D.12.1	Augment fallback mechanism for StartGeneration to include latest available results from STS/PDS.	<p>Augment the fallback mechanism for other GRFs' StartGeneration for the RTS and the first period involved in the calculation of STS, such that the order of preference is as below:</p> <ol style="list-style-type: none"> <li>1) Value provided by PSO</li> <li>2) Scheduled end-of-period generation in the prior period's real-time schedule</li> <li>3) Scheduled end-of-period generation for the prior period based on the latest available short-term schedule</li> <li>4) Scheduled end-of-period generation for the prior period based on the latest available pre-dispatch schedule</li> <li>5) Zero</li> </ol>
7	Appendix 6D, Section D.12.2	Amend fallback mechanism for StartGeneration to include latest available results from STS/PDS.	<p>Amend the fallback mechanism for other GRFs' StartGeneration for the first period involved in the calculation of PDS, such that the order of preference is as below:</p> <ol style="list-style-type: none"> <li>1) Scheduled end-of-period generation for the prior period based on the latest available short-term schedule</li> </ol>

S/N	Chapter / Section	Proposed Modifications	Reasons for Modifications
			2) Scheduled end-of-period generation for the prior period based on the latest available pre-dispatch schedule 3) Zero
8	Appendix 6D, Section D.12.10	Augment fallback mechanism for PriorScheduledPurchase to include latest available results from STS/PDS.	Augment the fallback mechanism for PriorScheduledPurchase for the RTS and the first period involved in the calculation of STS, such that the order of preference is as below: <ol style="list-style-type: none"> <li>1) Scheduled end-of-period consumption in the prior period's real-time schedule</li> <li>2) Scheduled end-of-period consumption for the prior period based on the latest available short-term schedule</li> <li>3) Scheduled end-of-period consumption for the prior period based on the latest available pre-dispatch schedule</li> <li>4) Sum of energy bid quantities</li> </ol>
9	Appendix 6D, Section D.12.11	Amend fallback mechanism for PriorScheduledPurchase to include latest available results from STS/PDS.	Amend the fallback mechanism for PriorScheduledPurchase for the first period involved in the calculation of PDS, such that the order of preference is as below: <ol style="list-style-type: none"> <li>1) Scheduled end-of-period consumption for the prior period based on the latest available short-term schedule</li> <li>2) Scheduled end-of-period consumption for the prior period based on the latest available pre-dispatch schedule</li> <li>3) Sum of energy bid quantities</li> </ol>
10	Appendix 6D, Section D.12.12	Align wording of fallback mechanism for PriorScheduledPurchase for the first period involved in the calculation of MOS.	Shifted section (previously D.12.10.3) determining PriorScheduledPurchase for the first period involved in the calculation of the MOS, and aligned wording with other sections.
11	Appendix 6D, Section D.12.13	Shift section without word modifications.	Shifted section (previously D.12.10.4) determining PriorScheduledPurchase for periods that are not the first dispatch period of forecast schedules.

## 5. Legal sign off

The proposed modifications to the Market Rules set out in Annex 1 have been reviewed by EMC’s internal legal counsel, whose opinion is that

- (a) the proposed modifications generally reflect the intent of the modification proposals as expressed in the third column of the table in Annex 1, and
- (b) (subject to the amendments being adopted by the EMC Board and approved by EMA), are effective upon them coming into force in accordance with the Market Rules.

This endorsement, however, does not relate to whether the modification to the Market Rules as detailed in Annex 1 are effective from any operational, financial, tax or commercial perspective.

## 6. Implementation Effort Estimate

If the proposed modifications in this paper are implemented together with the system changes relevant to MCE modelling of ESS<sup>17</sup>, EMC does not expect the implementation timeline to be further extended.

Having said that, implementing the proposed modifications in this paper involves additional costs (and man-days). A summary of estimated incremental implementation costs is provided in the rightmost column of Table 3 below.

**TABLE 3: Implementation Effort Estimate**

S/N	Work Item	Without enhancements to StartGeneration & PriorScheduledPurchase	With enhancements to StartGeneration & PriorScheduledPurchase	Difference
1	Internal EMC Manpower (Including Backfill)	\$221,665	\$253,623	\$31,958
2	External Resource to Support (Vendor)	\$322,910	\$358,204	\$35,294
3	Audit	\$60,000	\$60,000	\$0
	<b>Total One-Off Cost</b>	<b>\$604,575</b>	<b>\$671,827</b>	<b>\$67,252</b>
4	Recurring Cost (Annual Opex)	\$48,412	\$56,316	\$7,904
	<b>Total Recurring Cost</b>	<b>\$48,412</b>	<b>\$56,316</b>	<b>\$7,904</b>

<sup>17</sup> Kindly refer to RC383: Modelling of Energy Storage Systems and RC386: Incorporation of State-of Charge within MCE Modelling of ESS.

## 7. Consultation

The proposed modifications were published for consultation on 16<sup>th</sup> April 2024, and we have received comments from Senoko Energy and Keppel Merlimau Cogen. Industry comments, as well as EMC’s responses are provided below in Table 4.

**TABLE 4: Summary of Industry Comments**

S/N	Comment	EMC’s Response
<b>Comments received from: Senoko Energy</b>		
1	<p>While we understand that scenarios involving using the fallback value of 0 occur on a few occasions a year, it also generally happens to plants which are not running.</p> <p>However, if this situation were to apply to larger running units with low ramp rates, the potential market and financial impact would be significant.</p> <p>Hence, we are fully aligned with the proposed changes such that the chances of resorting to a fallback value of 0 are greatly diminished. This change would bring about greater market scheduling resiliency, and Senoko is fully supportive of this.</p>	EMC notes Senoko Energy’s comments.
<b>Comments received from: Keppel Merlimau Cogen</b>		
2	Keppel has no objections to simultaneously implement RC383, RC386 and RC387 into one system change to reduce total system change cost.	EMC notes Keppel Merlimau Cogen’s comment.

## 8. Conclusion

This paper proposes rule modifications to enhance the fallback mechanisms for StartGeneration and PriorScheduledPurchase, thereby improving scheduling resiliency.

We consider that relying on the latest available STS and PDS for fallback values of StartGeneration and PriorScheduledPurchase will be more reflective of actual physical conditions, thus resulting in more accurate dispatch schedules.

## 9. RCP’s Decision at the 141<sup>st</sup> RCP Meeting

At the 141<sup>st</sup> meeting, the RCP **unanimously supported** the proposed modifications as set out in Annex 1.

## 10. Recommendation

The RCP recommends that the EMC Board:

- a) **adopt** the proposed rule modifications as set out in Annex 1; and
- b) **seek the EMA’s approval** of the proposed rule modifications as set out in Annex 1.

**ANNEX 1: Proposed Modifications to Market Rules**

Existing Market Rules (1 Jan 2024)	Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
<b>CHAPTER 6 – MARKET OPERATION</b>	<b>CHAPTER 6 – MARKET OPERATION</b>	

<p><b>7.5</b>     <u><b>INFORMATION USED IN EACH SCENARIO OR SCHEDULE</b></u></p> <p>7.5.1     The <i>EMC</i> shall use the most current valid information on the following to determine and revise each of the scenarios or schedules referred to in sections 7.3, 7.4 and 7.4A:</p> <p>...</p> <p>7.5.1.5   the initial loading of each <i>generation facility</i> and <i>import registered facility</i>, determined:</p> <p>    a.     in the case of each <i>market outlook scenario</i>, on the basis of the end of the last <i>dispatch period</i> represented in the most recently <i>published pre-dispatch schedule</i> which was determined using the same <i>nodal load forecast</i> and that contains the applicable <i>dispatch period</i>; and</p> <p>    b.     in the case of each <i>pre-dispatch schedule</i>, on the basis of the later of the <i>real-time dispatch schedule</i> for the period after the current <i>dispatch period</i> (if available) and the <i>real-time dispatch schedule</i> for the current <i>dispatch period</i>;</p>	<p><b>7.5</b>     <u><b>INFORMATION USED IN EACH SCENARIO OR SCHEDULE</b></u></p> <p>7.5.1     The <i>EMC</i> shall use the most current valid information on the following to determine and revise each of the scenarios or schedules referred to in sections 7.3, 7.4 and 7.4A:</p> <p>...</p> <p>7.5.1.5   the initial loading of each <i>generation facility</i>, <u><i>load registered facility</i></u>, and <i>import registered facility</i>, determined <u>in accordance with section D.8 and D.12 of Appendix 6D</u>:</p> <p>    a.     <del>in the case of each <i>market outlook scenario</i>, on the basis of the end of the last <i>dispatch period</i> represented in the most recently <i>published pre-dispatch schedule</i> which was determined using the same <i>nodal load forecast</i> and that contains the applicable <i>dispatch period</i>; and</del></p> <p>    b.     <del>in the case of each <i>pre-dispatch schedule</i>, on the basis of the later of the <i>real-time dispatch schedule</i> for the period after the current <i>dispatch period</i> (if available) and the <i>real-time dispatch schedule</i> for the current <i>dispatch period</i>;</del></p>	<p>Avoid repeating fallback mechanism for StartGeneration and PriorScheduledPurchase.</p>
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Existing Market Rules (1 Jan 2024)	Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
<p><b>7.6 <u>SOLVING EACH SCENARIO OR SCHEDULE</u></b></p> <p>7.6.1A When preparing each <i>pre-dispatch schedule</i>, the <i>market clearing engine</i> shall be run for each <i>dispatch period</i> from the end of the relevant <i>dispatch period</i> for which the <i>real-time dispatch schedule</i> used in section 7.5.1.5(b) applies, until the end of the <i>pre-dispatch horizon</i> to which such <i>pre-dispatch schedule</i> relates.</p> <div data-bbox="136 778 920 1038" style="border: 1px solid black; padding: 5px;"> <p><b>Explanatory note: This means that for pre-dispatch schedules, the market clearing engine is always run from the best current estimates of data. However, when reporting the actual schedule, only the dispatch periods in the schedule are reported – the initial periods that are run in order to get to the start of the pre-dispatch horizon are not reported.</b></p> </div>	<p><b>7.6 <u>SOLVING EACH SCENARIO OR SCHEDULE</u></b></p> <p>7.6.1A When preparing each <i>pre-dispatch schedule</i>, the <i>market clearing engine</i> shall be run for each <i>dispatch period</i> from the <u>start</u> <del>end of the relevant <i>dispatch period</i></del> for which the <del><i>real-time dispatch schedule</i></del> used in section 7.5.1.5(b) applies, until the end of the <i>pre-dispatch horizon</i> to which such <i>pre-dispatch schedule</i> relates.</p> <div data-bbox="981 783 1778 1091" style="border: 1px solid black; padding: 5px;"> <p><del><b>Explanatory note: This means that for pre-dispatch schedules, the market clearing engine is always run from the best current estimates of data. However, when reporting the actual schedule, only the dispatch periods in the schedule are reported – the initial periods that are run in order to get to the start of the pre-dispatch horizon are not reported.</b></del></p> </div>	<p>Reduce the number of dispatch periods that the MCE has to run when generating a PDS.</p>
<p><b>APPENDIX 6D – MARKET CLEARING FORMULATION</b></p>	<p><b>APPENDIX 6D – MARKET CLEARING FORMULATION</b></p>	

Existing Market Rules (1 Jan 2024)		Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)		Reasons for Modification
<b>D.3</b> <b><u>PARAMETERS</u></b>		<b>D.3</b> <b><u>PARAMETERS</u></b>		Update section reference
PriorScheduledPurchase <sub>p</sub>	The MW quantity of scheduled <i>energy</i> withdrawal for the <i>LRF with REB</i> associated with <i>energy bid p</i> for the immediately preceding <i>dispatch period</i> . Determined in accordance with section D.12.10.	PriorScheduledPurchase <sub>p</sub>	The MW quantity of scheduled <i>energy</i> withdrawal for the <i>LRF with REB</i> associated with <i>energy bid p</i> for the immediately preceding <i>dispatch period</i> . Determined in accordance with sections <u>D.12.10 to D.12.13</u> .	



<p><b>D.8 REPRESENTATION OF MULTI-UNIT FACILITIES</b></p> <p>D.8.3 In the case where the <i>dispatch period</i> is being produced for a <i>real-time dispatch schedule</i>, or where the <i>dispatch period</i> is the first <i>dispatch period</i> of the multiple <i>dispatch periods</i> involved in the calculation of a <i>short-term schedule</i>, then the initial generation levels <math>StartGeneration_g</math> for <i>multi-unit facilities</i> shall be calculated from the initial generation levels of the constituent <i>generating units</i>, subject to section D.8.3.1, in accordance with the following table:</p> <p>...</p> <p>D.8.3.1 In the event that the time difference between the start of the <i>dispatch period</i> and the time at which the PSO compiled the most recently received status data on the network elements referred to in section D.6.1.2 is greater than <math>StatusDataLifeMax</math>, or in the event that a value <math>StartGeneration_u</math> for any <i>generating unit</i> of a <i>multi-unit facility</i> is not included in the most recently received status data on the network elements referred to in D.6.1.2, then the initial generation level <math>StartGeneration_g</math> for the corresponding <i>multi-unit facility</i> shall be the same as the corresponding value <math>Generation_g</math> for the same <i>generation registered facility</i> in the <i>real-time dispatch schedule</i> for the <i>dispatch period</i> current at the time when the calculation of the <i>real-time dispatch schedule</i> commences. In the event that no such <i>real-time dispatch schedule</i> is available, then the EMC shall use a value of zero for that <math>StartGeneration_u</math> for that</p>	<p><b>D.8 REPRESENTATION OF MULTI-UNIT FACILITIES</b></p> <p>D.8.3 In the case where the <i>dispatch period</i> is being produced for a <i>real-time dispatch schedule</i>, or where the <i>dispatch period</i> is the first <i>dispatch period</i> of the multiple <i>dispatch periods</i> involved in the calculation of a <i>short-term schedule</i>, then the initial generation levels <math>StartGeneration_g</math> for <i>multi-unit facilities</i> shall be calculated from the initial generation levels of the constituent <i>generating units</i>, subject to sections <u>D.8.3.1 to D.8.3.4</u>, in accordance with the following table:</p> <p>...</p> <p>D.8.3.1 In the event that the time difference between the start of the <i>dispatch period</i> and the time at which the PSO compiled the most recently received status data on the network elements referred to in section D.6.1.2 is greater than <math>StatusDataLifeMax</math>, or in the event that a value <math>StartGeneration_u</math> for any <i>generating unit</i> of a <i>multi-unit facility</i> is not included in the most recently received status data on the network elements referred to in D.6.1.2, then the initial generation level <math>StartGeneration_g</math> for the corresponding <i>multi-unit facility</i> shall be the same as the corresponding value <math>Generation_g</math> for the same <i>generation registered facility</i> in the <i>real-time dispatch schedule</i> for the <i>dispatch period</i> current at the time when the calculation of the <i>real-time dispatch schedule</i> <u>or the <i>short-term schedule</i></u> commences. <del>In the event that no such <i>real-time dispatch schedule</i> is available, then the EMC shall use a value of zero for that</del></p>	<p>Augment the fallback mechanism for multi-unit facilities' <math>StartGeneration</math>, for the RTS and the first period involved in the calculation of the STS, such that the order of preference is as below:</p> <ol style="list-style-type: none"> <li>1) Value provided by PSO in the most recently received status data on the network elements referred to in section D.6.1.2</li> <li>2) Scheduled end-of-period generation in the prior period's real-time schedule</li> </ol>
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Existing Market Rules (1 Jan 2024)	Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
<p><i>generating unit</i> in the calculations of this section D.8.3.</p>	<p><del>StartGeneration<sub>g</sub> for that <i>generating unit</i> in the calculations of this section D.8.3.</del></p> <p><u>D.8.3.2 In the event that no such <i>real-time dispatch schedule</i> is available, the initial generation level StartGeneration<sub>g</sub> for the <i>multi-unit facility</i> shall be the same as the corresponding value of Generation<sub>g</sub> for the same <i>generation registered facility</i> in the latest available <i>short-term schedule</i> (based on normal load forecast) for the <i>dispatch period</i> current at the time when the calculation of the <i>real-time dispatch schedule</i> or the <i>short-term schedule</i> commences.</u></p> <p><u>D.8.3.3 In the event that no such <i>short-term schedule</i> is available, the initial generation level StartGeneration<sub>g</sub> for the <i>multi-unit facility</i> shall be the same as the corresponding value of Generation<sub>g</sub> for the same <i>generation registered facility</i> in the latest available <i>pre-dispatch schedule</i> for the <i>dispatch period</i> current at the time when the calculation of the <i>real-time dispatch schedule</i> or the <i>short-term schedule</i> commences.</u></p> <p><u>D.8.3.4 In the event that no such <i>pre-dispatch schedule</i> is available, then the EMC shall use a value of zero for StartGeneration<sub>g</sub> for the <i>multi-unit facility</i>.</u></p>	<p>3) Scheduled end-of-period generation for the prior period based on the latest available short-term schedule</p> <p>4) Scheduled end-of-period generation for the prior period based on the latest available pre-dispatch schedule</p> <p>5) Zero</p>

<p>D.8.4 In the case where the <i>dispatch period</i> is involved in the calculation of a <i>pre-dispatch schedule</i> and is the first <i>dispatch period</i> of the multiple <i>dispatch periods</i> involved in the calculation of the <i>pre-dispatch schedule</i>, then the initial generation levels <math>StartGeneration_g</math> for <i>multi-unit facilities</i> shall be the same as the corresponding values <math>Generation_g</math> for the same <i>generation registered facility</i> in the <i>real-time dispatch schedule</i> for the <i>dispatch period</i> current at the time when the calculation of the <i>pre-dispatch schedule</i> commences.</p>	<p>D.8.4 In the case where the <i>dispatch period</i> is involved in the calculation of a <i>pre-dispatch schedule</i> and is the first <i>dispatch period</i> of the multiple <i>dispatch periods</i> involved in the calculation of the <i>pre-dispatch schedule</i>, then the initial generation levels <math>StartGeneration_g</math> for <i>multi-unit facilities</i> shall be the same as the corresponding values <math>Generation_g</math> for the same <i>generation registered facility</i> in the <u>latest available short-term schedule (based on normal load forecast) for the dispatch period immediately preceding the first dispatch period of the pre-dispatch schedule.</u> <del>real-time dispatch schedule for the dispatch period current at the time when the calculation of the pre-dispatch schedule commences.</del></p> <p><u>D.8.4.1 In the event that no such short-term schedule is available, then the value of <math>StartGeneration_g</math> for the multi-unit facility shall be the corresponding value <math>Generation_g</math> in the latest available pre-dispatch schedule for the dispatch period immediately preceding the first dispatch period of the pre-dispatch schedule to be calculated in D.8.4.</u></p> <p><u>D.8.4.2 In the event that no such pre-dispatch schedule is available, then the value of <math>StartGeneration_g</math> for the multi-unit facility shall equal to zero.</u></p>	<p>Amend the fallback mechanism for multi-unit facilities' <math>StartGeneration</math>, for the first period involved in the calculation of the PDS, such that the order of preference is as below:</p> <ol style="list-style-type: none"> <li>1) Scheduled end-of-period generation for the prior period based on the latest available short-term schedule</li> <li>2) Scheduled end-of-period generation for the prior period based on the latest available pre-dispatch schedule</li> </ol>
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Existing Market Rules (1 Jan 2024)	Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
		3) Zero

**D.12 RAMPING CONSTRAINTS**

D.12.1.1 In the event that a value of StartGeneration<sub>g</sub> for any *generating unit* that is not part of a *multi-unit facility* is not updated by the *PSO* or provided to the *EMC* during the *dispatch period* for the time being when the calculation of the *real-time dispatch schedule* or the first *dispatch period* of the multiple *dispatch periods* involved in the calculation of a *short-term schedule* commences, the initial generation level of StartGeneration<sub>g</sub> for the *generation registered facility* shall be the same as the corresponding value of Generation<sub>g</sub> for the same *generation registered facility* in the *real-time dispatch schedule* for the *dispatch period* with respect to the time when the calculation of the *real-time dispatch schedule* commences. In the event that no such *real-time dispatch schedule* is available, then the *EMC* shall use a value of zero for StartGeneration<sub>g</sub> for the *generation registered facility*.

**D.12 RAMPING CONSTRAINTS**

D.12.1.1 In the event that a value of StartGeneration<sub>g</sub> for any *generating unit* that is not part of a *multi-unit facility* is not updated by the *PSO* or provided to the *EMC* during the *dispatch period* for the time being when the calculation of the *real-time dispatch schedule* or the first *dispatch period* of the multiple *dispatch periods* involved in the calculation of a *short-term schedule* commences, the initial generation level of StartGeneration<sub>g</sub> for the *generation registered facility* shall be the same as the corresponding value of Generation<sub>g</sub> for the same *generation registered facility* in the *real-time dispatch schedule* for the *dispatch period* with respect to the time when the calculation of the *real-time dispatch schedule* or the short-term schedule commences. ~~In the event that no such real-time dispatch schedule is available, then the EMC shall use a value of zero for StartGeneration<sub>g</sub> for the generation registered facility.~~

D.12.1.2 In the event that no such real-time dispatch schedule is available, the initial generation level of StartGeneration<sub>g</sub> for the generation registered facility shall be the same as the corresponding value of Generation<sub>g</sub> for the same generation registered facility in the latest available short-term schedule (based

Augment the fallback mechanism for other GRFs' StartGeneration, for the RTS and the first period involved in the calculation of the STS, such that the order of preference is as below:

- 1) Value provided by PSO
- 2) Scheduled end-of-period generation in the prior period's real-time schedule
- 3) Scheduled end-of-period generation for the prior period based on the latest available short-term schedule

Existing Market Rules (1 Jan 2024)	Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
	<p><u>on normal load forecast) for the <i>dispatch period</i> with respect to the time when the calculation of the <i>real-time dispatch schedule</i> or the <i>short-term schedule</i> commences.</u></p> <p><u>D.12.1.3</u> In the event that no such <i>short-term schedule</i> is available, the initial generation level of <u>StartGeneration<sub>g</sub></u> for the <u>generation registered facility</u> shall be the same as the corresponding value of <u>Generation<sub>g</sub></u> for the same <u>generation registered facility</u> in the latest available <u>pre-dispatch schedule</u> for the <u>dispatch period</u> with respect to the time when the calculation of the <u>real-time schedule</u> or the <u>short-term schedule</u> commences.</p> <p><u>D.12.1.4</u> In the event that no such <u>pre-dispatch schedule</u> is available, then the <u>EMC</u> shall use a value of zero for <u>StartGeneration<sub>g</sub></u> for the <u>generation registered facility</u>.</p>	<p>4) Scheduled end-of-period generation for the prior period based on the latest available pre-dispatch schedule</p> <p>5) Zero</p>

D.12.2 In the case where the *dispatch period* is the first *dispatch period* of the multiple *dispatch periods* involved in the calculation of the *pre-dispatch schedule*, then the values of  $StartGeneration_g$  for each *generation registered facility*, except *multi-unit facilities*, shall be the corresponding values of  $Generation_g$  in the *real-time dispatch schedule* for the *dispatch period* current at the time when the calculation of the *pre-dispatch schedule* commences, or, if this *real-time dispatch schedule* is not available, the *real-time dispatch schedule* for the *dispatch period* immediately preceding that which is current at the time when the calculation of the *pre-dispatch schedule* commences.

D.12.2 In the case where the *dispatch period* is the first *dispatch period* of the multiple *dispatch periods* involved in the calculation of the *pre-dispatch schedule*, then the values of  $StartGeneration_g$  for each *generation registered facility*, except *multi-unit facilities*, shall be the corresponding values of  $Generation_g$  in the latest available *short-term schedule* (based on normal load forecast) for the *dispatch period* immediately preceding the first *dispatch period* of the *pre-dispatch schedule*. ~~*real-time dispatch schedule* for the *dispatch period* current at the time when the calculation of the *pre-dispatch schedule* commences, or, if this *real-time dispatch schedule* is not available, the *real-time dispatch schedule* for the *dispatch period* immediately preceding that which is current at the time when the calculation of the *pre-dispatch schedule* commences.~~

D.12.2.1 In the event that no such *short-term schedule* is available, then the values of  $StartGeneration_g$  for each *generation registered facility*, except *multi-unit facilities*, shall be the corresponding values of  $Generation_g$  in the latest available *pre-dispatch schedule* for the *dispatch period* immediately preceding the first *dispatch period* of the *pre-dispatch schedule* to be calculated in D.12.2.

D.12.2.2 In the event that no such *pre-dispatch schedule* is available, then the values of  $StartGeneration_g$  for each *generation*

Amend the fallback mechanism for other GRFs'  $StartGeneration$ , for the first period involved in the calculation of the PDS, such that the order of preference is as below:

- 1) Scheduled end-of-period generation for the prior period based on the latest available short-term schedule
- 2) Scheduled end-of-period generation for the prior period based on the latest available pre-dispatch schedule

Existing Market Rules (1 Jan 2024)	Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
	<p><u><del>registered facility, except multi-unit facilities, shall equal to zero.</del></u></p>	3) Zero



<p>D.12.10 In respect of an <i>LRF with REB</i> associated with <i>energy bid p</i>, the value of <i>PriorScheduledPurchase<sub>p</sub></i> to be used in the calculation of:</p> <p>D.12.10.1 a <i>real-time dispatch schedule</i> or the first <i>dispatch period</i> of a <i>short-term schedule</i> shall be the value of <i>Purchase<sub>p</sub></i> in the <i>real-time dispatch schedule</i> for the immediately preceding <i>dispatch period</i>;</p> <p>D.12.10.2 the first <i>dispatch period</i> of a <i>pre-dispatch schedule</i> shall be the value of <i>Purchase<sub>p</sub></i> in the <i>real-time dispatch schedule</i> for the <i>dispatch period</i> current at the time when the calculation of the <i>pre-dispatch schedule</i> commences;</p> <p>D.12.10.3 the first <i>dispatch period</i> of a <i>market outlook scenario</i> shall be the value of <i>Purchase<sub>p</sub></i> in the most recently released <i>pre-dispatch schedule</i> with a <i>nodal load forecast</i> corresponding to the <i>market outlook scenario</i> being calculated, and shall be taken from the <i>dispatch period</i> in such <i>pre-dispatch schedule</i> immediately preceding the first <i>dispatch period</i> required in the calculation of the <i>market outlook scenario</i>, provided that such <i>pre-dispatch schedule</i> contains the appropriate <i>dispatch period</i>; and</p> <p>D.12.10.4 each <i>dispatch period</i> that is not the first <i>dispatch period</i> of the multiple <i>dispatch periods</i> involved in the calculation of a</p>	<p>D.12.10 In respect of an <i>LRF with REB</i> associated with <i>energy bid p</i>, the value of <i>PriorScheduledPurchase<sub>p</sub></i> to be used <del>in the calculation of a <i>real-time dispatch schedule</i> or the first <i>dispatch period</i> of the multiple <i>dispatch periods</i> involved in the calculation of a <i>short-term schedule</i></del> shall be the value of <i>Purchase<sub>p</sub></i> <u>in the <i>real-time dispatch schedule</i> for the <i>dispatch period</i> with respect to the time when the calculation of the <i>real-time dispatch schedule</i> or the <i>short-term schedule</i> commences.</u></p> <p><u>D.12.10.1 In the event that no such <i>real-time dispatch schedule</i> is available, the value of <i>PriorScheduledPurchase<sub>p</sub></i> for the LRF shall be the corresponding value of <i>Purchase<sub>p</sub></i> in the latest available <i>short-term schedule</i> (based on normal <i>load forecast</i>) for the <i>dispatch period</i> with respect to the time when the calculation of the <i>real-time dispatch schedule</i> or the <i>short-term schedule</i> commences.</u></p> <p><u>D.12.10.2 In the event that no such <i>short-term schedule</i> is available, the value of <i>PriorScheduledPurchase<sub>p</sub></i> for the LRF shall be the corresponding value of <i>Purchase<sub>p</sub></i> in the latest available <i>pre-dispatch schedule</i> for the <i>dispatch period</i> with respect to the time when the calculation of the <i>real-time dispatch schedule</i> or the <i>short-term schedule</i> commences.</u></p>	<p>Augment the fallback mechanism for <i>PriorScheduledPurchase</i> for the RTS and the first period involved in the calculation of the STS, such that the order of preference is as below:</p> <ol style="list-style-type: none"> <li>1) Scheduled end-of-period consumption in the prior period's real-time schedule</li> <li>2) Scheduled end-of-period consumption for the prior period based on the latest available short-term schedule</li> <li>3) Scheduled end-of-period consumption for the prior period based</li> </ol>
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Existing Market Rules (1 Jan 2024)	Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
<p><i>short-term schedule, pre-dispatch schedule or market outlook scenario</i> shall be the corresponding value of <math>Purchase_p</math> for the immediately preceding <i>dispatch period</i> in the <i>short-term schedule, pre-dispatch schedule or market outlook scenario</i> respectively.</p> <p>In the event of the unavailability of the <i>real-time dispatch schedule</i> or the <i>pre-dispatch schedule</i> from which the value of <math>Purchase_p</math> is to be derived for section D.12.10.1, D.12.10.2 or D.12.10.3, then the value of <math>PriorScheduledPurchase_p</math> shall be the total MW quantities in all <i>price-quantity pairs</i> of the <i>energy bid</i> for that <i>LRF with REB</i> for the first <i>dispatch period</i> mentioned in such section D.12.10.1, D.12.10.2 or D.12.10.3 as the case may be, calculated as:</p> $\sum_{j \in PURCHASEBIDBLOCKS_p} PurchaseBlockMax_{p,j} .$	<p><u>D.12.10.3</u> In the event that no such <u><i>pre-dispatch schedule</i></u> is available, the value of <u><math>PriorScheduledPurchase_p</math></u> for the LRF shall be the total MW quantities in all <u><i>price-quantity pairs</i></u> of the <u><i>energy bid</i></u> for that <u><i>LRF with REB</i></u> for the <u><i>real-time dispatch schedule</i></u> or the first <u><i>dispatch period</i></u> of the <u><i>short-term schedule</i></u>, as the case may be, calculated _____ as:  <u><math>\sum_{j \in PURCHASEBIDBLOCKS_p} PurchaseBlockMax_{p,j}</math></u>  <math>\hat{=}</math></p> <p><del>D.12.10.1</del> — a <del><i>real-time dispatch schedule</i></del> or the first <del><i>dispatch period</i></del> of a <del><i>short-term schedule</i></del> shall be the value of <del><math>Purchase_p</math></del> in the <del><i>real-time dispatch schedule</i></del> for the immediately preceding <del><i>dispatch period</i></del>;</p> <p><del>D.12.10.2</del> — the first <del><i>dispatch period</i></del> of a <del><i>pre-dispatch schedule</i></del> shall be the value of <del><math>Purchase_p</math></del> in the <del><i>real-time dispatch schedule</i></del> for the <del><i>dispatch period</i></del> current at the time when the calculation of the <del><i>pre-dispatch schedule</i></del> commences;</p> <p><del>D.12.10.3</del> — the first <del><i>dispatch period</i></del> of a <del><i>market outlook scenario</i></del> shall be the value of <del><math>Purchase_p</math></del> in the most recently released <del><i>pre-dispatch schedule</i></del> with a <del><i>nodal load</i></del></p>	<p>on the latest available pre-dispatch schedule</p> <p>4) Sum of energy bid quantities</p>

Existing Market Rules (1 Jan 2024)	Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
	<p><del>forecast corresponding to the market outlook scenario being calculated, and shall be taken from the dispatch period in such pre-dispatch schedule immediately preceding the first dispatch period required in the calculation of the market outlook scenario, provided that such pre-dispatch schedule contains the appropriate dispatch period; and</del></p> <p><del>D.12.10.4</del> <u>each dispatch period that is not the first dispatch period of the multiple dispatch periods involved in the calculation of a short term schedule, pre dispatch schedule or market outlook scenario shall be the corresponding value of <math>Purchase_p</math> for the immediately preceding dispatch period in the short-term schedule, pre dispatch schedule or market outlook scenario respectively.</u></p>	

Existing Market Rules (1 Jan 2024)	Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
	<p>In the event of the unavailability of the <del>real time dispatch schedule or the pre dispatch schedule</del> from which the value of <del>Purchase<sub>p</sub></del> is to be derived for section <del>D.12.10.1, D.12.10.2 or D.12.10.3</del>, then the value of <del>PriorScheduledPurchase<sub>p</sub></del> shall be the total MW quantities in all <del>price quantity pairs</del> of the <del>energy bid</del> for that <del>LRF with REB</del> for the first <del>dispatch period</del> mentioned in such section <del>D.12.10.1, D.12.10.2 or D.12.10.3</del> as the case may be, calculated as:</p> $\frac{\sum_{j \in \text{PURCHASEBIDBLOCKS}_p} \text{PurchaseBlockMax}_{p,j}}{\quad}$	

[New Section]

D.12.11 In respect of an *LRF with REB* associated with *energy bid p*, the value of *PriorScheduledPurchase<sub>p</sub>* to be used in the *first dispatch period* of the *multiple dispatch periods* involved in the calculation of a *pre-dispatch schedule* shall be the value of *Purchase<sub>p</sub>* in the latest available *short-term schedule* (based on normal load forecast) for the *dispatch period* immediately preceding the *first dispatch period* of the *pre-dispatch schedule*.

D.12.11.1 In the event that no such *short-term schedule* is available, the value of *PriorScheduledPurchase<sub>p</sub>* for the LRF shall be the corresponding value of *Purchase<sub>p</sub>* in the latest available *pre-dispatch schedule* for the *dispatch period* immediately preceding the *first dispatch period* of the *pre-dispatch schedule* to be calculated in D.12.11.

D.12.11.2 In the event that no such *pre-dispatch schedule* is available, the value of *PriorScheduledPurchase<sub>p</sub>* for the LRF shall be the total MW quantities in all *price-quantity pairs* of the *energy bid* for that *LRF with REB* for the *first dispatch period* of the *pre-dispatch schedule*, calculated as:

$$\sum_{j \in \text{PURCHASEBIDBLOCKS}_p} \text{PurchaseBlockMax}_{p,j}$$

⋮

Amend the fallback mechanism for *PriorScheduledPurchase* for the first period involved in the calculation of the PDS, such that the order of preference is as below:

- 1) Scheduled end-of-period consumption for the prior period based on the latest available short-term schedule
- 2) Scheduled end-of-period consumption for the prior period based on the latest available pre-dispatch schedule

Existing Market Rules (1 Jan 2024)	Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
		3) Sum of energy bid quantities

Existing Market Rules (1 Jan 2024)	Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
[New Section]	<p><u>D.12.12</u>In respect of an <i>LRF with REB</i> associated with <i>energy bid p</i>, the value of <u>PriorScheduledPurchase<sub>p</sub></u> to be used in the first <i>dispatch period</i> of the multiple <i>dispatch periods</i> involved in the calculation of a <i>market outlook scenario</i> shall be the value of <u>Purchase<sub>p</sub></u> in the latest available <i>pre-dispatch schedule</i> with a <i>nodal load forecast</i> corresponding to the <i>market outlook scenario</i> being calculated, and shall be taken from the <i>dispatch period</i> in such <i>pre-dispatch schedule</i> immediately preceding the first <i>dispatch period</i> required in the calculation of the <i>market outlook scenario</i>, provided that such <i>pre-dispatch schedule</i> contains the appropriate <i>dispatch period</i>.</p> <p><u>D.12.12.1</u> In the event that no such <i>pre-dispatch schedule</i> is available, the value of <u>PriorScheduledPurchase<sub>p</sub></u> for the LRF shall be the total MW quantities in all <i>price-quantity pairs</i> of the <i>energy bid</i> for that <i>LRF with REB</i> for the first <i>dispatch period</i> of the <i>market outlook scenario</i>, calculated as:  <math display="block">\sum_{j \in \text{PURCHASEBIDBLOCKS}_p} \text{PurchaseBlockMax}_{p,j}</math></p>	Shifted section (previously D.12.10.3) determining PriorScheduledPurchase for the first period involved in the calculation of the MOS, and aligned wording with other sections.

Existing Market Rules (1 Jan 2024)	Proposed Rule Changes (deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
	<p><u>D.12.13</u> <u>In respect of an <i>LRF with REB</i> associated with <i>energy bid p</i>, the value of <i>PriorScheduledPurchase<sub>p</sub></i> to be used in each <i>dispatch period</i> that is not the first <i>dispatch period</i> of the multiple <i>dispatch periods</i> involved in the calculation of a <i>short-term schedule, pre-dispatch schedule</i> or <i>market outlook scenario</i> shall be the corresponding value of <i>Purchase<sub>p</sub></i> for the immediately preceding <i>dispatch period</i> in the <i>short-term schedule, pre-dispatch schedule</i> or <i>market outlook scenario</i> respectively.</u></p>	<p>Shifted section (previously D.12.10.4) determining <i>PriorScheduledPurchase</i> for periods that are not the first dispatch period of forecast schedules.</p>