

**MINUTES OF THE RULES CHANGE PANEL  
146<sup>th</sup> MEETING  
HELD ON THURSDAY, 13 MARCH 2025 AT 10.00AM  
AT ENERGY MARKET CO. PTE LTD  
4 SHENTON WAY #03-01  
SGX CENTRE 2, SINGAPORE 068807**

Present:	Toh Seong Wah (Chairman) Soh Yap Choon Andrew Tan Wong Yew Chung Fong Yeng Keong Dr Toh Mun Heng	Henry Gan Koay Yi Jing Sherman Toh Calvin Quek Teo Chin Hau Teo Swee Teng
Absent with Apologies:	Dallon Kay Cheong Zhen Siong	Matthijs Jan Guichelaar
In Attendance: (EMC)	Poa Tiong Siaw Lim Chern Yuen Vincent Wise Tan Li Liaun	Li Zhenhui Reuben Ngiau Alfred Toh

	Minutes of 146 <sup>th</sup> RCP Meeting – 13 March 2025	Action
1.	<b>Notice of Meeting</b>  The Chairman called the meeting to order at 10.00am. The Notice and Agenda of the meeting were taken as read.	
2.	<b>Confirmation of Minutes of the 145<sup>th</sup> Rules Change Panel Meeting</b>  The Minutes of the 145 <sup>th</sup> Rules Change Panel (“RCP”) meeting, held on 16 January 2025, were approved by the RCP.	
3.	<b>Update of Monitoring List, Summary of Outstanding Rules Change Submissions, and RCP Work Plan Status Update</b>  Mr Li Zhenhui presented the Update of Monitoring List, Rule Change Submission, and RCP Work Plan Status Update.	
4.	<b>RC391: Publication of TPC Information</b>  Ms Tan Li Liaun, Vice President, Technology (Applications) of EMC joined the meeting in attendance.	
4.1	Mr Vincent Wise presented the introduction, background to the TPC mechanism, various discussions points of the 141 <sup>st</sup> RCP and 144 <sup>th</sup> RCP meetings respectively, and the rule changes to effect the RCP’s decision with more precise estimated costs and timeline.  (Ms Teo Swee Teng and Mr Wong Yew Chung joined the meeting)	

4.2	<p>Mr Sherman Toh enquired about the effective date for the rule changes. Mr Wise responded that EMC would confirm and communicate the effective date to the industry after the RCP supported rules are adopted by EMC Board and approved by EMA.</p> <p>(Mr Teo Chin Hau joined the meeting)</p>	
4.3	<p>EMC recommended that the RCP:</p> <ul style="list-style-type: none"> <li>a. support the proposed modifications as set out in Annex 1 of the paper; and</li> <li>b. recommend that the EMC Board adopts the proposed rule modifications as set out in Annex 1 of the paper.</li> </ul> <p>The RCP <b>unanimously supported</b> the EMC's recommendation.</p> <p>(Ms Tan Li Liaun left the meeting)</p>	
5.	<b>RC390: Market Clearing and Offers for Energy Storage Systems</b>	
5.1	<p>Mr Lim Chern Yuen presented the two categories of modifications proposed as follows:</p> <ul style="list-style-type: none"> <li>1) Rule modifications for modelling of energy storage systems (ESS) in the Market Clearing Engine (MCE); and Market manual modifications for requirements for ESS offers.</li> </ul> <p>Mr Lim concluded that the proposed modifications would increase the accuracy of the MCE formulation for ESS and clarify the requirements for ESS offers. Mr Lim reported that Technical Working Group (TWG) had reviewed and <u>unanimously endorsed</u> the modifications.</p>	
5.2	<p>Mr Wong Yew Chung queried why a reserve proportion factor is not required for a ESS's offers.</p> <p>Mr Lim responded that, for a Generation Registered Facility (GRF), the reserve proportion factor caps the reserve schedule to a proportion of its energy schedule. As a result, when a GRF is scheduled for 0MW of energy, its reserve schedule is capped at 0MW. This modelling constraint reflects physical constraints on conventional combined-cycle gas turbines. It therefore does not apply to ESS which do not use turbines.</p>	
5.3	<p>EMC recommended that the RCP:</p> <ul style="list-style-type: none"> <li>a) support the proposed modifications as set out in Annex 1 and Annex 2 of the paper; and</li> <li>b) recommend that the EMC Board adopt the proposed modifications as set out in Annex 1 and Annex 2 of the paper.</li> </ul>	

	The RCP <b>unanimously supported</b> the EMC's recommendation.	
<b>6.</b>	<b>Rules Change Panel Work Plan 2025</b>	
6.1	<p>Mr Reuben Ngiau presented the background to the annual RCP Work Plan Prioritisation Exercise (Exercise) and explained the rationale and standard processes for the Exercise.</p> <p>Mr Ngiau presented the progress for 12 issues on the 2024 Work Plan. EMC completed work for 2 issues and made significant progress for 8 issues.</p> <p>Mr Ngiau then proposed to prioritise a list of 12 issues for 2025 and for the RCP to discuss on the removal, referral or retention of issues.</p>	
6.2	<p>Referring to the issues that received significant votes for removal, Mr Calvin Quek asked for the main reasons provided by industry stakeholders that voted to remove the issue titled "Review of the Market's Regulation Requirement".</p> <p>Mr Ngiau reported the 2 reasons given below:</p> <ol style="list-style-type: none"> <li>1) The proposal is a policy issue which hinges on the implementation of the Intermittency Pricing Mechanism (IPM).</li> <li>2) The proposal to make solar pay for imbalances would discourage solar investments, increase costs, and add unnecessary complexity. Regulation requirements should evolve by expanding ancillary services to incentivise grid flexibility, investing in grid modernisation, and improving forecasting tools. A more constructive approach would focus on solutions like grid-scale storage, solar-plus-storage incentives, and advanced ancillary market mechanisms to manage variability without creating punitive measures.</li> </ol>	
6.3	<p>Mr Calvin Quek explained that currently, there is no clarity on the implementation of the IPM. In the meantime, solar intermittency is likely causing other generators to be pulsed up, sometimes beyond their scheduled regulation quantities.</p> <p>Mr Quek further explained that currently, generators providing frequency regulation bear the cost of solar intermittency, with some costs passed down to consumers via higher Allocated Regulation Price (AFP) charges.</p> <p>Mr Quek opined that the EMA should place a higher priority on rolling out the IPM due to the rapid growth in solar capacity.</p>	
6.4	In response to Mr Quek's comments, Mr Soh Yap Choon opined that the IPM is a policy decision, and therefore the issue should be referred to EMA.	
6.5	While Ms Koay Yi Jing acknowledged that the IPM, which determine cost allocation for procured regulation, is a policy	

	<p>matter, she suggested the RCP should nevertheless also consider reviewing the system-wide requirement for regulation. Adding on to Ms Koay's comments, Mr Quek suggested the RCP could task the TWG to put up a proposal to EMA on this issue.</p> <p>Mr Soh opined that the TWG might not be an appropriate party to assess the issue.</p>	
6.6	<p>Mr Henry Gan mentioned that the PSO currently provide 48 static regulation requirements values for 48 half-hourly daily dispatch periods across a 12-month period. Mr Gan suggested that the PSO could develop a more dynamic methodology to determine regulation requirements, such that it can vary between day-types and weather.</p> <p>Mr Soh explained that based on the PSO's analysis, there is a low correlation between load fluctuation and solar fluctuation for most periods. Therefore, he opined that presently the PSO may not need to increase the regulation requirement to cater for solar intermittency. However, Mr Soh acknowledge that there are cases where the PSO pulsed the generators to maintain system frequency for periods with large intra-period drops in solar irradiance.</p>	
6.7	<p>Mr Poa Tiong Siaw clarified that the market rules do not determine the level of regulation required for the system. This determination is a function of the PSO because it concerns the security and reliability of the power system. Therefore, if the issue is about reviewing the level of regulation requirement, it would rightfully be under the purview of the PSO. However, if the issue is about exploring new market products that can serve or augment what regulation does for the system, EMC would be happy to study the need and type of such products. As a general rule for the RCP workplan, rule change proposals relating to the security and reliability of the system or policy matters are referred to the PSO and/or the EMA respectively.</p>	
6.8	<p>Chairman reiterated that the market rules do not determine the regulation requirement, hence the matter should be referred to the appropriate party to undertake, while also noting that the RCP has expressed its concerns and the urgent need to have clarity on the IPM and address regulation requirement.</p> <p>Chairman proposed that the RCP collectively make a representation to the EMA on the need to resolve the IPM in a timely manner.</p>	RCP
6.9	<p>Ms Koay asked if the draft letter to EMA could be circulated to the RCP for comments.</p> <p>Chairman responded that the letter would express the industry's consensus on the urgency of resolving this issue, and request that the EMA provides an update on the IPM. Chairman also instructed that the draft be circulated to the Panel for its comments.</p>	

6.10	<p>On the retention / removal of issues, Mr Ngiau reiterated that arising from the Panel's discussion, Issue 11 (Review Reserve Responsibility Share) is proposed to be retained.</p> <p>Mr Soh queried whether Issue 11 should be combined with Issue 4 (Facilitating Integration of Large-Scale Imports into the Market).</p> <p>Mr Poa responded that combining issues together tends to extend the time taken to resolve an issue. Having said that, in practice, when addressing Issue 4, EMC will likely have to address Issue 11 along the way.</p>																											
6.11	<p>Dr Toh Mun Heng asked if issue 12 (Exclude Provisional Prices from TPC Moving Average Price (MAP) Calculation) is similar to issue 6 (Publication of other TPC Information).</p> <p>Mr Vincent Wise responded that issue 6, which has just been completed, is different from issue 12, of which substantial work has not started.</p>																											
6.12	<p>Mr Ngiau presented EMC's recommendations to the RCP as follows:</p> <p>a) Agree on a list of 12 issues to be addressed within 12 months in the updated work plan;</p> <table><tr><th>S/N</th><th>Issue Title</th></tr><tr><td>1</td><td>Holistic review of the current prudential requirement obligations and its enforcement process under the market rules. Review sufficiency of credit support taking into account price volatility.</td></tr><tr><td>2</td><td>Holistic review of the Market Rules related to cessation of business, liquidation, and insolvency</td></tr><tr><td>3</td><td>Review of Scope and Framework for Compensation Arising from Complying with PSO Issuing Overriding Dispatch Instructions</td></tr><tr><td>4</td><td>Facilitating Integration of Large-Scale Imports into the Market</td></tr><tr><td>5</td><td>Review of rules governing participation and offers for batteries and distributed energy resources</td></tr><tr><td>6</td><td>Publication of other Temporary Price Cap (TPC) information</td></tr><tr><td>7</td><td>Review of Obligation to Act Within 5 Minutes when An Action is to be Taken "Promptly" or "Immediately"</td></tr><tr><td>8</td><td>Exemption from Gate Closure Rules for cancelled synchronisation</td></tr><tr><td>9</td><td>Load forecasting and MCE dispatch and price determination when contracted Fast Start unit(s) is performing monthly test or when actual activation</td></tr><tr><td>10</td><td>Review Reserve Responsibility Share (RRS) calculation</td></tr><tr><td>11</td><td>Exclude provisional prices from Temporary Price Cap (TPC) Moving Average Price (MAP) calculation</td></tr><tr><td>12</td><td>Provision under Automatic Financial Penalty Scheme (AFPS) to exempt any Generation Registered Facility</td></tr></table>	S/N	Issue Title	1	Holistic review of the current prudential requirement obligations and its enforcement process under the market rules. Review sufficiency of credit support taking into account price volatility.	2	Holistic review of the Market Rules related to cessation of business, liquidation, and insolvency	3	Review of Scope and Framework for Compensation Arising from Complying with PSO Issuing Overriding Dispatch Instructions	4	Facilitating Integration of Large-Scale Imports into the Market	5	Review of rules governing participation and offers for batteries and distributed energy resources	6	Publication of other Temporary Price Cap (TPC) information	7	Review of Obligation to Act Within 5 Minutes when An Action is to be Taken "Promptly" or "Immediately"	8	Exemption from Gate Closure Rules for cancelled synchronisation	9	Load forecasting and MCE dispatch and price determination when contracted Fast Start unit(s) is performing monthly test or when actual activation	10	Review Reserve Responsibility Share (RRS) calculation	11	Exclude provisional prices from Temporary Price Cap (TPC) Moving Average Price (MAP) calculation	12	Provision under Automatic Financial Penalty Scheme (AFPS) to exempt any Generation Registered Facility	EMC Market Administration
S/N	Issue Title																											
1	Holistic review of the current prudential requirement obligations and its enforcement process under the market rules. Review sufficiency of credit support taking into account price volatility.																											
2	Holistic review of the Market Rules related to cessation of business, liquidation, and insolvency																											
3	Review of Scope and Framework for Compensation Arising from Complying with PSO Issuing Overriding Dispatch Instructions																											
4	Facilitating Integration of Large-Scale Imports into the Market																											
5	Review of rules governing participation and offers for batteries and distributed energy resources																											
6	Publication of other Temporary Price Cap (TPC) information																											
7	Review of Obligation to Act Within 5 Minutes when An Action is to be Taken "Promptly" or "Immediately"																											
8	Exemption from Gate Closure Rules for cancelled synchronisation																											
9	Load forecasting and MCE dispatch and price determination when contracted Fast Start unit(s) is performing monthly test or when actual activation																											
10	Review Reserve Responsibility Share (RRS) calculation																											
11	Exclude provisional prices from Temporary Price Cap (TPC) Moving Average Price (MAP) calculation																											
12	Provision under Automatic Financial Penalty Scheme (AFPS) to exempt any Generation Registered Facility																											

	(GRF) on local control that deviated from its scheduled load due to frequency response
b) Remove the following issues as they were ranked in the bottom half in 3 consecutive exercises:	
Issue Number	Issue Title
20	Review of Expected Net Exposure (ENE) formula and application
21	Review of handling the metering adjustment payment arising from settlement reruns on a defaulting market participant
22	Review of the requirement for registration as commissioning generation facility for generation settlement facilities, except for intermittent generation facilities of aggregate name-plate rating 10MW or more
24	Improvement of the prepayment process
25	Adjustment for regulation charges and price neutralisation after final settlement
27	Redeeming the full amount of an MP's Banker Guarantee (BG) upon default
28	To require an MP submitting a request for cancellation of facility registration to also state the intended effective date of cancellation
c) Refer the following issues to EMA:	
Issue Number	Issue Title
13	Methodology to calculate Vesting Contract Reference Price (VCRP)
33	Basing the Demand Response Bid Price Floor on an average pricing benchmark derived from recent two weeks' USEP data
35	Reevaluating the Regulation Requirements in Singapore's Power System: The Impact of Intermittent Generation and Solar Energy
36	Review of the market's regulation requirement
37	Review of regulation requirement in response to increased pulsing of GRFs arising from solar intermittency
d) Retain Issue 39 (Review Reserve Responsibility Share (RRS) calculation) in the work plan	
e) Task EMC to monitor the progress of the agreed work plan.	
The RCP approved EMC's proposed work plan for April 2025 to March 2026 and had no objections to the issues to be removed and referred to EMA.	
7.	<b>Any Other Business</b>  Chairman informed the Panel that EMC will be approaching RCP for comments on EMC's budget for next FY. The next RCP

	meeting will be held virtually on 4 April 2025, with details to be sent in due course.	
--	----------------------------------------------------------------------------------------	--

There being no other matters, the meeting ended at 11.16 a.m.

**Toh Seong Wah**  
**Chairman**

Minutes taken by:  
Ivy Leong  
Legal, Compliance & Corporate Secretarial Executive