

**MINUTES OF THE RULES CHANGE PANEL  
130<sup>th</sup> MEETING  
HELD ON THURSDAY, 14 JULY 2022 AT 10.00AM  
VIA VIDEO-CONFERENCING**

Present:	Toh Seong Wah (Chairman) Soh Yap Choon Tony Tan Carol Tan Song Jian En Ho Yin Shan Tan Chian Khong	Henry Gan Teo Chin Hau Calvin Quek Sean Chan Cheong Zhen Siong Fong Yeng Keong
Absent with Apologies:	Matthijs Jan Guichelaar	Dr Toh Mun Heng
In Attendance: (EMC)	Poa Tiong Siaw Li Zhenhui Vincent Wise	Wang Jing Qin Weixiao Lim Chern Yuen

**1. Notice of Meeting**

The Chairman called the meeting to order at 10.05am. The Notice and Agenda of the meeting were taken as read.

**2. Confirmation of Minutes of the 129<sup>th</sup> Rules Change Panel Meeting**

The Minutes of the 129<sup>th</sup> Rules Change Panel (“RCP”) meeting, held on 12 May 2022, were approved by the RCP.

**3. Monitoring List**

The RCP noted the content of the Monitoring List.

**4. Summary of Outstanding Rule Changes**

The RCP noted the summary of outstanding rule changes.

**5. Rules Change Work Plan Status Update**

The RCP noted the update on the Rules Change Work Plan.

**6. Price Revision When Unanticipated Load Shedding Occur and When  
PSO Issues Overriding Instructions  
(Paper No. EMC/RCP/130/2022/CP89)**

Mr Lim Chern Yuen presented the paper that reviews the suggestions of price revision, particularly for periods when unanticipated load shedding occurs, and for periods when the PSO issues overriding instructions. He gave a background on the proposal received and went on to present EMC’s analysis and recommendations on the following 3 issues identified:-

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- Issue 1: Price revision for periods with unanticipated load shedding
- Issue 2: Price revision for periods that the PSO overrides the MCE dispatch schedule in real-time
- Issue 3: Price revision for periods that the PSO instructs GRFs to modify offers pre-emptively

6.1 Mr Lim Chern Yuen informed the RCP that the concept paper was published on 22 April 2022 for consultation. EMC responded to comments received from PacificLight, Senoko Energy, Tuas Power and PSO.

6.2 Mr Henry Gan referred to the 5 types of price revision cases and clarified that Type 5 “Prices do not reflect locational system marginal price due to modelling errors” refer to modelling limitations instead of modelling errors. For instance, lower voltage levels are simply not modelled in the MCE. Therefore, issues arising from lower voltage levels cannot be captured.

6.3 Issue 1: Price revision for periods with unanticipated load shedding

6.3.1 Mr Tony Tan sought clarifications as to why the default price is not \$4,500/MWh. Mr Henry Gan explained that in a load shedding event, demand will drop and if supply is still sufficient to serve demand at that point in time, the price may not necessarily rise to \$4,500/MWh. He referred to the example presented, a major unanticipated load shedding event on 18 September 2018, where the price did not actually spike during period 3 and 4. He explained that the MCE cleared the prices because there was sufficient supply to meet the lower demand. Load shedding happens when the system is in stress and to prevent frequency from dropping to a very low level, causing a cascading effect of a blackout to the power system, blocks of demand will be tripped off stage by stage, depending on the drop in frequency. When a block of load is being tripped off, demand is shed and therefore, there is lower demand to serve in the market. The MCE will match offers against the demand forecast file provided by the PSO and if there are sufficient offers to meet the lower demand, the price will be cleared below \$4,500/MWh. He continued to explain that the price rise in Period 5 was likely due to higher demand and lower supplies after the tripped units’ availability is reflected in the offers. Mr Soh Yap Choon concurs with Mr Henry Gan’s explanation.

(Calvin Quek joined the meeting.)

6.3.2 Mr Henry Gan highlighted that price revisions done currently are still conducted in line with ex-ante pricing principle, using values as they should have been before the dispatch run. He shared how a price revision under Type 2 “incorrect input data” is being conducted. He opined that it is based on ex-ante pricing instead of ex-post pricing as proposed under Issue 1. Mr Gan also pointed out that if actual values are being used for price revision during periods with unanticipated load shedding, then actual values should also be used for all the units, demand and network conditions and not just for the units that have tripped.

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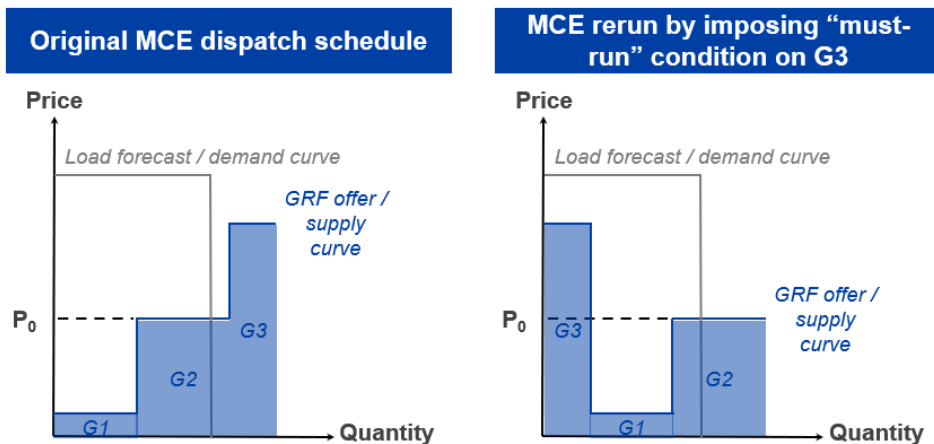
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6.3.3 Mr Henry Gan agreed that one of the drawbacks of price revision is unfairness to consumers because consumers can choose not to consume if they had known that the price is high. After the price revision, the consumer would have already consumed but has to pay a higher price. He opined that this cannot be disregarded even though it affects a minority of consumers.

6.3.4 Mr Henry Gan suggested doing a price simulation for Issue 1 to assess the price outcome if the proposal is to be implemented. Mr Tony Tan concurred with Mr Gan’s suggestion.

6.4 Issue 2: Price revision for periods that the PSO overrides the MCE dispatch schedule in real-time

6.4.1 With reference to the illustration under Issue 2, Mr Teo Chin Hau asked under what circumstances would PSO override the dispatch schedule. Ms Wang Jing replied that PSO may override the dispatch schedule under various conditions stated in the Market Rules, especially during emergency operations or when the system is facing local or overall supply issues. She cited an example where PSO could override dispatch instructions due to a local voltage issue and require G3 to provide energy, as illustrated in the diagram below



In this case, G3 is deemed to be “must-run”, required to maintain system stability. If a price revision is to be done, it would guarantee dispatch G3 at the required level and the price would be P0 or even lower (for example at G1’s offer’s price at P1). As G2 had been scheduled to run it could seek compensation if the revised price is lower than its offer price, and they have suffered losses. The illustration is trying to explain that if a rerun is conducted for these scenarios, the revised price will depend on various aspects, and may not necessarily result in a high price.

6.4.2 Mr Tony Tan notes that G1 was generating at P0 which is higher than P1 after the price revision. He asked if G1 can seek compensation. Ms Wang Jing replied that in this situation, it is not considered a loss for G1 as the clearing price is at least its offer price. She also highlighted that EMC’s proposal for Issue 2 is not to perform a price revision. Mr Teo Chin Hau disagreed that there is no loss if the clearing price is at the offer price, because the fundamental principle of the design of the market is to settle

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at clearing price and the clearing price will uniformly apply to all the generators. The delta between the P0 and P1 is essentially a real loss to G1.

Mr Lim Chern Yuen said that fundamentally EMC is not proposing an MCE rerun because this type of physical issues cannot be foreseen ex-ante. The illustration was to show that even if we conducted an MCE rerun, it might not result in a clearing price that is reflective of cost of the units that PSO has issued dispatch instruction to.

6.4.3 Mr Teo Chin Hau asked about the last time PSO intervened. Ms Wang Jing said that EMC does not generally publish PSO's overriding instructions. Having said that, PSO did override the MCE dispatch schedule in the load shed incident on 18 September 2018. 1 or 2 gencos had sought compensation, but no price revision was conducted for that incident.

6.4.4 Mr Teo Chin Hau asked if there is any better way to simulate to reflect the actual physical conditions, if price revision is not the best way to solve this issue. Mr Lim Chern Yuen replied that the paper is fundamentally based on ex-ante pricing. Assuming all inputs are correct and no emergency or changes are foreseen, ex-ante pricing is treated as an accurate price. For Issue 1, it is certain that the outage unit will be unable to generate up to the required amount and so it would be justifiable to modify offers after that as the price is clearly inaccurate ex-ante. For Issue 2, price revision is not recommended as there is no good reason to foresee ex-ante how PSO would override instructions in real-time. Mr Teo said that if the argument is that there is a constraint on the network, there should be a price rerun also. Ms Wang replied that if PSO is able to foresee such a constraint, it would already have let EMC know for incorporation into the MCE.

Mr Poa Tiong Siaw noted that as a follow up, EMC can clarify on the principles underlying the recommendations, and to also conduct relevant simulations to provide greater clarity on the issues.

6.4.5 Mr Soh Yap Choon queried how the price rerun for the 18 September 2018 incident would be conducted. Mr Lim responded that based on the current proposal for Issue 1, if we were to do an MCE rerun for the 2018 episode, it would entail doing a price rerun only for Period 4, not for Period 3 or Period 5. The ex-ante offers for Period 3 and Period 5 are already accurate. The outage units took about 20 minutes after the outage to revise their offers, so only managed to revise in Period 4 for Period 5 onwards.

6.4.6 Mr Gan added on by clarifying that currently under Type 2 price revisions, "wrong inputs" refer to system-related parameters and inputs, such as erroneous demand forecast files or network status files. There has never been a case where EMC changes generators' offers, as offers are akin to a contractual arrangement. If EMC were to change offers, it would only be fair to allow all other gencos to change their offers as well. Mr Gan further emphasized that he does not believe any offers should be changed in the first place, and that the NEMS fundamentally runs on a self-commitment

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principle, without allowances for the market operator to change offers ex-post.

**6.5 Issue 3: Price revision for periods that the PSO instructs GRFs to modify offers pre-emptively**

6.5.1 Mr Song Jian En sought clarifications on the schemes where PSO can instruct gencos to modify offers. Mr Soh Yap Choon clarified that both the SCS or DSS schemes are similar, where gencos will be required to modify their offer prices and quantities.

6.5.2 Mr Teo Chin Hau sought clarification on why the counterfactual scenario cannot be produced due to potential strategic behaviour of gencos. Mr Lim Chern Yuen replied that in theory an MCE price revision may correct price distortion, but in practice it may not be feasible as there is no good way to know what the counterfactual scenario is. If it is done by assuming the latest available offer, it might change the behaviour of gencos expecting PSO to intervene.

6.5.3 Mr Song Jian En asked about which point in time the latest available offer refers to. Mr Lim Chern Yuen replied that the latest available offer refers to the latest offer by the genco right before PSO issues instructions.

6.5.4 Mr Teo Chin Hau opined that the fair approach is to simulate the price outcome based on the latest available offer before the PSO intervention. He requested for a simulation to be conducted for Issue 3 based on latest available offers, for the RCP to have a more meaningful discussion based on the simulation outcome, and to ascertain if the approach will bring the risk of strategic behaviour by gencos.

**EMC**

6.6 Mr Poa Tiong Siaw stressed that in analysing the issues, EMC’s concern was not about the price outcome. The main objective is always to achieve an accurate price as far as possible, for the period that warrants a price revision to reflect the demand and supply conditions at that point in time. He noted the RCP’s request for simulation exercises to be conducted and reiterated that we should not rely heavily on the simulation outcomes to draw conclusions on whether to conduct price revisions. He asked if the RCP is agreeable that this is a fair approach to the issues.

6.6.1 Chairman agreed with the approach suggested by Mr Poa Tiong Siaw – it is important to establish the right price given the condition that the market was in at that point in time, and not whether the price should be higher or lower. The price simulation exercise is intended to arrive at the right price outcome.

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6.7 Chairman requested Mr Poa Tiong Siaw to summarise for the RCP the follow up actions for EMC. Mr Poa Tiong Siaw summarised the follow up actions as follows

**EMC**

1. To refine and explicitly explain why price revision is recommended under Issue 1 and not for other Issues.
2. If price revision is proposed, to elaborate on what type of price revision and how it should be conducted, considering if there would be any unintended consequences.
3. To run simulations based on the above 2 action items and update the RCP.

The RCP agreed with the approach proposed by Mr Poa Tiong Siaw.

There being no other matters, the meeting ended at 11.40am.

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

Minutes taken by:  
Angeline Tan  
Executive, Legal and Corporate Secretariat