MINUTES OF THE RULES CHANGE PANEL
125th MEETING
HELD ON WEDNESDAY, 8 SEPTEMBER 2021 AT 10.00AM
VIA VIDEO-CONFERENCING

Present
Toh Seong Wah (Chairman)  Henry Gan
Soh Yap Choon  Teo Chin Hau
Tony Tan  Calvin Quek
Carol Tan  Sean Chan
Terence Ang  Nerine Teo
Cheong Zhen Siong  Ho Yin Shan
Dr Toh Mun Heng  Fong Yeng Keong
Tan Chian Khong

In Attendance:
(EMC)
Poa Tiong Siaw  Wang Jing
Li Zhenhui  Qin Weixiao
Clarissa Ooi  Vincent Wise

1. Notice of Meeting

The Chairman called the meeting to order at 10.00am. The Notice and Agenda of the meeting were taken as read.

1.1 Replacement of Representative of the Retail Electricity Licensee class of market participant

The RCP was informed that the EMC Board approved the appointment of Ms Nerine Teo from Ohm Energy Pte Ltd to the RCP as a representative of the Retail Electricity Licensee class of market participant.

The Chairman welcomed Ms Nerine Teo to the 125th RCP Meeting.

2. Confirmation of Minutes of the 124th RCP Meeting

The Minutes of the 124th RCP meeting, held on 14 July 2021, were approved by the RCP.

3. Monitoring List

The RCP noted the content of the Monitoring List.

(Mr Cheong Zhen Siong joined the meeting)

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. Review of Allowable Remedies for Events of Default  
(Paper No. EMC/RCP/125/2021/RC367)

Ms Clarissa Ooi gave a recap of the paper that reviews the allowable remedies for each event of default listed in Chapter 3 Section 7.3.6 to 7.3.9 of the Market Rules.

6.1 Ms Clarissa Ooi briefed the RCP on the re-assessment of the Category 3 and Section 7.3.1.6 Events of Default.

6.1.1 Ms Nerine Teo asked whether the public consultation on Energy (Resilience Measures and Miscellaneous Amendments) Bill by Ministry of Trade and Industry in relation to the ability to draw down on electricity retailers' deposits to offset outstanding settlement payments to protect consumers’ interests will affect the re-assessment. Ms Clarissa Ooi replied that EMC is aware of the said public consultation. The proposed changes will not affect the Category 3 (insolvency related) Events of Default.

6.1.2 With respect to default under Section 7.3.1.6, Mr Cheong Zhen Siong noted that EMC may take actions to restrict the activities of a market participant (“MP”) in the market, he asked if such actions taken by EMC may result in insufficient generation to safeguard the system security of Singapore. Ms Clarissa Ooi replied that EMA would have taken into consideration the sufficiency of generation before making its decision to suspend a MP’s licence. From EMC’s perspective, EMC is proposing to restrict activities of the MP that does not have a valid electricity licence. She added that there will be a further review on the appropriate actions that EMC should take due to the complexity of issues involving this specific event of default.

6.2 Ms Clarissa Ooi went on to present the proposed modifications to the Market Rules. She informed the RCP that the proposed modifications were published on 16 August 2021 for consultation and EMC responded to comments received from the Market Surveillance and Compliance Panel and Senoko Energy.

6.3 Mr Soh Yap Choon asked if the current suspension process will remain unchanged. Mr Poa Tiong Siaw replied that there will be no change to the current suspension process.

6.4 Mr Soh Yap Choon noted the proposal from Senoko Energy for EMC to provide more time for MP to top up its credit support requirements and to increase the turnaround time to prevent MPs from receiving a default notice due to administrative and logistical challenges in acquiring and submitting a new BG within 2 BD. He said that there is a trade-off between addressing the prudential requirements and the impact to the MP and asked about the effect of the proposal. Mr Poa Tiong Siaw noted Mr Soh Yap Choon’s comments and said that EMC does not have clarity of the proposal now but will be studying this as part of a holistic review of the prudential and credit risk management for the entire market.
6.5 EMC recommended that the RCP:
   a) support the proposed rule modifications;
   b) recommend that the EMC Board adopt the proposed rule modifications; and
   c) recommend that the proposed rule modifications come into force 1 calendar day after the date on which the approval of the Authority is published by the EMC.

6.5.1 The RCP by majority vote supported EMC’s recommendations.

The following RCP members supported:

- Mr Henry Gan (Representative of EMC)
- Mr Soh Yap Choon (Representative of the PSO)
- Mr Teo Chin Hau (Representative of Generation Licensee)
- Mr Tony Tan (Representative of Generation Licensee)
- Mr Calvin Quek (Representative of Generation Licensee)
- Ms Carol Tan (Representative of Transmission Licensee)
- Mr Sean Chan (Representative of Retail Electricity Licensee)
- Mr Terence Ang (Representative of Retail Electricity Licensee)
- Ms Nerine Teo (Representative of Retail Electricity Licensee)
- Ms. Ho Yin Shan (Representative of the Market Support Services Licensee)
- Dr Toh Mun Heng (Representative of Consumers of Electricity in Singapore)
- Mr YK Fong (Representative of Consumers of Electricity in Singapore)
- Mr Tan Chian Khong (Person experienced in financial matters in Singapore)

The following RCP members abstained:

- Mr Cheong Zhen Siong (Representative of Wholesale Electricity Trader)

7. Review of Constraint Violation Penalty
   (Paper No. EMC/RCP/125/2021/RC370)

Ms Wang Jing recapped that at the 124th RCP meeting, the RCP had
   a) unanimously supported Proposed Solution 1 to adjust Constraint Violation Penalty ("CVP") settings to secure dispatch for Essential Requirement and tasked EMC to modify the market rules to give effect to it; and
   b) by majority vote, supported Proposed Solution 2 for EMC to study further how ORDC can be adapted in Singapore’s context for procurement of non-essential reserve requirement and its impact on the market outcome.

7.1 Ms Wang Jing presented to the RCP further studies conducted by EMC on the proposed CVP values for regulation, reserves and energy. The agreed intent of the RCP was that the current procurement prioritization of products is preserved.
7.2 Ms Wang Jing went on to present the proposed modifications to the Market Rules. She informed the RCP that the proposed modifications were published on 16 August 2021 for consultation and EMC responded to comments received from PacificLight Power and iSwitch.

7.3 Ms Nerine Teo noted that there is a gap between the CVP value and the price cap and asked if it is more likely for USEP to hit a value of $4,500 during those periods. Ms Wang Jing replied that with the proposed increase in energy CVP to $10,000, the Market Clearing Engine (“MCE”) may theoretically procure energy at a cost that is higher than the current energy CVP. However, the price cap of $4,500 will still remain and it is possible that the USEP may hit the price cap more frequently. Ms Wang added that it was observed that the USEP did not hit the price cap in the simulation using data from 2020 to 2021.

7.4 In response to Mr Soh Yap Choon’s queries about the simulation results for the price increase, Ms Wang Jing said it was observed that the maximum price increase was $1,709 based on the 94 periods that EMC has simulated, and there was only one period where the price decreased significantly. She added that the price increased was less than $112 and $229 respectively for 50% and 75% of the deficit periods simulated.

7.5 Mr Y K Fong noted that based on the simulation results, there will be substantial increase in the energy price if the proposed CVP settings are implemented. Whilst Mr Fong understood that the objective of this proposal is to satisfy the reliability standard, he raised a concern on the increase of energy price for consumers. He noted that the recent price volatility in July and August 2021 were not related to CVP and asked if the price will be even higher with the proposed new CVP values.

Ms Wang Jing explained that there could be peak or high prices during normal days. If these high prices are not associated with any deficit of the ancillary service products, then it is unlikely that these prices will be affected with the proposed CVP changes. On the other hand, the energy price is likely to increase for periods where there is reserve or regulation products deficit, as the MCE will procure more reserve and regulation to meet the system reliability requirement. Ms Wang added that it was observed that since 2020, there has been only 94 periods of deficits where the market chose to sacrifice some of the reserve and regulation reserve, hence the proposed revised CVP values should only affect the prices of these 94 deficit periods.

(Ms Carol Tan left the meeting)

7.5.1 Dr Toh Mun Heng raised the same concern as Mr Y K Fong in terms of the increase in energy prices for consumers. He said that it would be ideal if the revised CVP values could bring a reduction in deficit periods and at the same time no impact to the electricity prices. In response to Dr Toh’s query on the constraint violation, Ms Wang Jing clarified that the violation is determined by the MCE as the CVP values will inform the MCE on what product to procure based on the price. She explained how the MCE will choose to violate the reserve requirements based on the CVP price even while there is capacity in the market and some generators are willing to provide reserve above the set CVP price.
7.6 Mr Cheong Zhen Siong asked about the benefit if the 94 deficit periods between 2020 and 2021 did not happen. Ms Wang Jing replied that one possible way to evaluate the benefit of the value of procuring the reserve would be to check the potential loss of load that could have been prevented should there be an unplanned event during the deficit period. This is proposed under the proposed solution 3 to use Operation Reserve Demand Curve (“ORDC”) to procure any reserve. However, based on discussion with PSO, all reserve requirements are essential to meet system reliability and should not be compromised.

7.7 Mr Y K Fong asked about the concerns if the 94 deficit periods remain unchanged. Mr Soh Yap Choon replied that the issue is the trade-off or risks to be taken. He said that the scheduling took into account the CVP settings, and that resulted in the deficit periods. In an actual situation of tight supply demand situation and a real deficit happens, and there is a shortfall in reserve schedule by the MCE, it could result in a blackout in some part of Singapore affecting consumers. Mr Soh added that the 94 deficit periods that happened between January 2020 to September 2021 were a result of the MCE scheduling which reflected the current CVP values and not because of any real shortfalls in the system.

7.7.1 Mr Soh Yap Choon noted that PSO has requested EMC to conduct a few simulations but had only shared with the RCP simulation results where the number deficit periods have been reduced to the lowest, without consideration of energy price levels. He suggested for EMC to share with the RCP a few scenarios on CVP different settings and compare the trade-offs between these different settings, so that the RCP can have a complete assessment before casting its votes. Mr Y K Fong and Dr Toh Mun Heng supported Mr Soh’s suggestion. Mr Fong also suggested that the deficit periods be reduced in steps, instead of going straight for the minimum. Dr Toh suggested that the simulation results include impact on the USEP.

7.8 Mr Tan Chian Khong suggested to plot the reliability target against the increase in consumer price to obtain the optimum solution of achieving the increase in reliability target with minimal increase in consumer price.

7.9 Mr Teo Chin Hau recapped that the price cap for reserve was $3,000 before the CVP was implemented and that the CVP was introduced to ensure that during scarcity periods, the MCE will always schedule energy over reserve. However, the CVP created an issue where the market saw frequent shortfalls in reserves and these pose risks to the system. Mr Teo noted Mr Soh’s suggestion for more simulation results but he questioned how the RCP should value the risk undertaken knowing that while there is enough capacity in the market, the market takes a decision not to procure the required reserve. He opined that the additional simulations will not help the RCP in its decision as the numbers to be simulated will be based on historical price, when the actual price can either be higher or lower. He agreed that the CVP settings should be fine-tuned to reduce the reserve shortfall.
7.9.1 Mr Tony Tan supported the revision of the CVP settings for a more efficient outcome for system reliability. He said that every genset in the system has a reserve responsibility share. The higher the reserve responsibility share of a particular genset would mean the unit is unreliable because they will have been proven to have experienced forced outages in the past. If there is a decoupling between the energy margin and the reserve prices, loading higher is no longer as costly for the unreliable unit because there is higher margin to earn from energy as compared to devoting the capacity to contingency reserve during high price periods. The outcome is distorted as the unreliable unit during scarcity should be loading lower because it is unreliable to begin with.

7.10 Chairman noted the views expressed by the consumer representatives over the impact on USEP as a result of the proposed CVP changes. He said that this is eventually a question of trade-off between market price and reliability. With respect to Mr Soh Yap Choon’s suggestion on simulations on different CVP scenarios, EMC would first need to work with PSO to clearly define the minimum acceptable reliability level. Otherwise, it would be hard to arrive at good and acceptable solutions. He added that the simulation results were based on data from 2020, and on the assumption that offers are unchanged. If the revised CVP settings are implemented, offer patterns are expected to change, which then will change the outcome. He concurred with iSwitch’s view (as shared its comments submitted) that there is a need to monitor the effectiveness of the changes after they are implemented.

7.10.1 Chairman noted that 99.99% of the dispatch schedule by the MCE are being used by PSO without change. This implies that MCE outcomes are consistently physically feasible and the standard should be maintained. He appreciated PSO’s offer to work with EMC on the simulations.

7.11 Mr Poa Tiong Siaw reiterated that the objective of the review was to find a way for the MCE to schedule resources that are available to meet the minimum reserve requirements. EMC did not evaluate solutions based on the impact on market prices because it was not an objective of the study. EMC had presented the expected impact of its proposal on market prices in the 124th RPC meeting in July. He noted that the concerns now raised by the consumer representatives with regard to the energy prices are unexpected. If market price level now becomes a criterion, then that would change the character of the study.

7.12 Mr Teo Chin Hau opined that there are a lot of assumptions made such as the assumption that the high reserve price will cascade into energy price through co-optimisation. He would like to know how the evaluation process the different scenarios would be like. Mr Poa Tiong Siaw replied that the process will remain to be worked out after RCP’s discussion today. He said that EMC will need to think through the process.

7.12.1 Chairman noted from Mr Soh Yap Choon that there may be some flexibility in the number of deficit periods to be reduced and asked if he can advise. Mr Soh Yap Choon explained that the current CVP setting of Block 1, 2 and 3 differentiate the extent of reliability standard that the system would have to experience in the event that the MCE is unable to find resources. The MCE will try to co-optimise energy and reserve products to ensure that
all the core requirements are met so that the power system remains secured. When Block 1 is compromised because of trade-off by the MCE, the impact to the system is manageable or acceptable. However if it goes down to Block 3, security of the whole system is at stake.

7.13 Mr Calvin Quek said that it would be hard to evaluate the trade-off and suggested for PSO to first determine the acceptable reliability standard before deciding on the CVP settings to be adjusted accordingly. This will ascertain the trade-off representing what the consumer will have to pay as a whole. Mr Teo Chin Hau said that the context has been set from the beginning that all requirements are essential unless the RCP would like to review whether the contingency requirements are to be revised. Mr Soh Yap Choon said that one of the options will be to do a ORDC kind of analysis which will change the step-wise CVP into an exponential or quadratic equation.

7.14 Mr Poa Tiong Siaw noted that the RCP is not ready to make a decision. He suggested that EMC continues to work with the PSO and the RCP to come to an agreement on the evaluation framework/criteria, so that effective and acceptable solutions can be found. Chairman agreed with Mr Poa’s suggestion to defer the decision and for EMC to come back to the RCP with the evaluation criteria. He requested for PSO’s support in this work. Mr Soh Yap Choon said that PSO will definitely work closely with EMC on this.

(Paper No. EMC/RCP/125/2021/07)

Ms Qin Weixiao informed the Panel that the mid-year review process of the RCP’s work plan is carried out every September and the intent of the mid-year review is to give stakeholders the chance to raise any urgent issue that may have arisen since March when the work plan was set.

As part of the mid-year review, EMC called for submissions on 6 August 2021. At the close of the submission, EMC received the following six proposals:

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<th>No.</th>
<th>Proposal</th>
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<td>1.</td>
<td>Modelling of on-site ambient temperature into the MCE such that GTs/CCPs’ maximum capacity are adjusted dynamically</td>
<td>PSO</td>
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<td>2.</td>
<td>Introduction of SWIFT as a form of Bank Guarantee</td>
<td>Senoko Energy</td>
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<td>3.</td>
<td>Definition of “failure to synchronise”</td>
<td>Senoko Energy</td>
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<td>4.</td>
<td>Request to reinstate some degree of market transparency in Daily Trading Reports, Weekly Trading Reports and Monthly Trading Reports published by EMC</td>
<td>Sembcorp Cogen</td>
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EMC recommended that the RCP consider both the urgency and impact of the proposal when deciding whether newly raised proposal should take priority over an existing work plan issue where work has not commenced.

(Mr Teo Chin Hau left the meeting)

8.1 Proposal - Definition of “failure to synchronise”

Mr Calvin Quek suggested for the review with the Market Assessment Unit (“MAU”) to include whether the change in RC357: Gate Closure Exemption in 2019 has also unintendedly penalised certain scenarios where reaction time should be given to the alarm to be assessed as not all alarms are clear cut when there is a forced outage. He also suggested for the Technical Working Group (“TWG”) to be used as a platform if required. The TWG combines the expertise of generators as well as the PSO, which is needed to assess the operational interpretation of “failure to synchronise” and if the alarms or timing required is reasonable. Ms Qin Weixiao noted Mr Quek’s suggestions and replied that EMC will first discuss with the MAU if an operational solution would be better. If a rule change is required, EMC will propose to the RCP to include this issue in the work plan.

8.2 EMC took into consideration the urgency and impact of the proposals, and recommended that

i) the following proposals be included in next year’s Rules Change Work Plan prioritisation exercise:
   - Proposal 1 - Modelling of on-site ambient temperature into the MCE such that GTs/CCPs’ maximum capacity are adjusted dynamically;
   - Proposal 2 - Introduction of SWIFT as a form of Bank Guarantee;
   - Proposal 5 - Alignment of performance standards of Interruptible Load scheme and Spinning Reserves;
   - Proposal 6 - Additional Market Re-run for Meter Data Error discovered between First and Second Nominated Day;

ii) the following proposal be reviewed by EMC with MAU and for EMC to report back to the RCP:
   - Proposal 3 - Definition of “failure to synchronise”; and

iii) the following proposals be excluded from the RCP work plan:
• Proposal 4 - Request to reinstate some degree of market transparency in Daily Trading Reports, Weekly Trading Reports and Monthly Trading Reports published by EMC.

8.2.1 The RCP **unanimously supported** EMC’s recommendations above.

There being no other matters, the meeting ended at 12.40pm.

**Toh Seong Wah**  
Chairman

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