MINUTES OF THE RULES CHANGE PANEL
100th MEETING
HELD ON TUESDAY, 16 JANUARY 2018 AT 10.00AM
AT ENERGY MARKET CO. PTE LTD
4 SHENTON WAY #03-01
SGX CENTRE 2, SINGAPORE 068807

Present: Toh Seong Wah (Chairman) Vijay Sirse
Daniel Lee Henry Gan
Tan Jun Jie Ho Yin Shan
Sean Chan Soh Yap Choon
Tony Tan Fong Yeng Keong
Dr. Toh Mun Heng

Absent with Marcus Tan Matthew Yeo
Apologies: Carol Tan Tan Chian Khong

In Attendance: Wang Jing Lucia Loh
(EMC) Jo Ong Yap Yun Ben
Qin Wei Xiao

1. Notice of Meeting

The Chairman called the meeting to order at 10.04am. The Notice and Agenda of the meeting were taken as read.

1.1 The Chairman welcomed both the re-appointed and newly appointed panel members to the 100th RCP Meeting. Each Panel member briefly introduced themselves.

2. Confirmation of Minutes of the 99th RCP Meeting

The Minutes of the 99th RCP meeting held on 14 November 2017 were tabled.

2.1 With reference to Item 8.6, Mr Henry Gan pointed out that the sentence “…while no UAT environment is added if only 2 additional load scenarios were introduced.” should be amended to “…while no additional solver licence is needed for UAT environment if only 2 additional load scenarios were introduced.”

With this amendment to the Minutes, the RCP approved the Minutes.

3. A) Matters Arising from 99th RCP Meeting

3.1 Compensation for Generators Adversely Affected by Price Revision

At the 99th RCP meeting, the RCP tasked EMC to examine the applicability of compensation for load registered facilities with restricted energy bids arising from price revision.

Ms Wang Jing informed the Panel that EMC is currently examining the proposal and will report back to the RCP when the analysis is completed.
3.2 Publishing Additional Load Scenarios in the Forecast Schedules

At the 99th RCP meeting, it was noted that the Panel was not ready to vote and would like EMC to rework the proposal based on Mr Peacocke’s suggestion of optimising resources as well as Mr Kay’s proposal for lower MW value.

Ms Wang informed the Panel that EMC is currently examining the proposal and will report back to the RCP when the analysis is completed.

3.3 B) Matters Arising from 91st RCP meeting - Enhancement to the Process of Updating Generation Outage Plan and Security Constraints

At the 91st RCP meeting, the Panel was satisfied with PSO’s current practice of updating generation outage plan (i.e. update published on the same calendar day as approval) and requested for PSO to update the SOM to reflect the current good practice. PSO agreed to update it in the SOM in the next revision.

Ms Wang informed the Panel that the PSO has updated the draft SOM (Revision 12), where the timing to update planned outage was changed from “monthly” to “update when necessary”.

3.3.1 Mr Vijay Sirse sought clarification on what “update when necessary” meant, and asked if there could be multiple updates within the same day. Mr Soh Yap Choon confirmed that Mr Sirse’s interpretation is correct.

3.3.2 Mr Soh added that the PSO is unable to commit to a fixed timeline for updates (e.g. update within X hours of approval) because should a system disturbance happen at the same time, the PSO’s priority would be to deal with the system disturbance first. In such situations, the update to the outage plan would be delayed.

4. Monitoring List

The RCP noted the contents of the Monitoring List.

Mr YK Fong and Mr Sirse suggested that the monitoring list items should be sorted in reverse chronological order (i.e. the latest item being listed first). Ms Wang noted the suggestion.

5. Summary of Outstanding Rule Changes

The RCP noted the summary of outstanding rule changes.

Mr Sirse suggested that the summary should be sorted in reverse chronological order as well. Ms Wang noted the suggestion.
6. **Rules Change Work Plan Status Update**

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

7. **Validating Load Forecasts**  
(Paper No. EMC/RCP/100/2018/CP72)

Ms Jo Ong presented a concept paper which explores three types of lower and upper limits to be provided by the PSO and imposed by the EMC in conducting the validation check on load forecasts:

- Option 1: Fixed limits for each period
- Option 2: Common fixed limits for all periods
- Option 3: Variable limits for each period

EMC recommends Option 3, which alleviates the issues associated with erroneous and extreme load forecasts without introducing significant costs and risks, as well as balances the risks of Type I errors (i.e. a true load forecast is incorrectly rejected) and Type II errors (i.e. a false load forecast is incorrectly retained).

7.1 Mr Sean Chan asked if there is any recurring cost in implementing Option 3. Mr Henry Gan replied that the recurring cost would be minimal since the validation check will be automated. In response to Dr Toh’s question on whether the implementation costs shown for Options 2 and 3 are one-time costs, Ms Ong replied that his understanding is correct.

7.2 Dr Toh asked whether there was a need to have such a complicated arrangement to validate load forecasts, and whether it was possible for the check to be implemented on PSO’s end given that the PSO is the data provider. Mr Sean Chan added that a fourth option was to maintain status quo.

7.2.1 Mr Soh responded that while PSO had implemented measures to prevent the Energy Management System from producing erroneous and extreme load forecasts, the possibility of transmission error cannot be ruled out. PSO preferred having an additional safeguard to mitigate the potential risk on system security.

7.2.2 Mr Sirse opined that given the possibility of cyber issues and data transmission errors, he supported implementing a validation check.

7.3 With reference to the January 2015 incident, Mr Chan asked what the actual impact was. Mr Soh clarified that there was no actual impact as the 0MW load forecast occurred in the forecast schedules, and PSO managed to correct the load forecast files in time for the real time schedules.
Mr Henry Gan sought clarification on how PSO would handle the situation if a 0MW load forecast was indeed used to produce the real-time schedule. His understanding was that the latest short-term schedule can be used as a fall-back. Mr Soh replied that the quickest way was to ask all gencos to maintain status quo, while assessing whether the upcoming period’s forecasted load necessitates PSO to instruct individual Gencos to increase output. Historically, there could be between 400 to 600MW difference in load forecast between consecutive periods.

Mr Tan Jun Jie asked whether the proposed validation check would be done only for the real-time schedule. Ms Ong clarified that the check will be applied to all schedules, and is done at the time when EMC receives and processes the load forecast file.

Mr Soh Yap Choon enquired whether the implementation costs would be lowered if the check is applied only to the real-time schedule and not the forecast schedules. Chairman noted that since the check is implemented at the file processing stage, the question was whether implementation costs would be lowered if the check is applied only for the VSTLF and not the STLF.

Ms Ong replied that EMC does not recommend applying the validation check only for the VSTLF file because if the load forecast value for the last period in a VSTLF file is wrong (i.e. outside of the limits), there is a need to use the value contained in the latest STLF file. Therefore, it is better that the values contained in the STLF files are also validated. Chairman said that EMC will clarify whether there will be a cost difference.

To Mr Tan Jun Jie’s query on what would happen if the fall-back value is invalid, Ms Ong clarified that such a situation would not occur as the fall-back value would have been validated.

Maximum Difference Value under Option 3

Mr Tan Jun Jie sought to understand the rationale for imposing the validation check based on the maximum difference from the previous period’s load forecast under Option 3. He opined that the maximum difference in load forecast across different VSTLF/STLF files for the same period is expected to be more accurate. Mr Tony Tan asked whether it was because checking for inter-period differences was easier.

Ms Ong replied that EMC had explored the option of a validation check on the load forecast for the same period across different VSTLF/STLF files, but PSO had advised that the difference in the load forecast values for a given period across VSTLF/STLF files sometimes could be large due to the system’s actual needs.
7.8 Mr Henry Gan suggested that PSO share the maximum difference value, so that a retrospective analysis can be conducted to assess the risk of Type I error. The study would also give the Panel assurance that the proposal would not lead to an increase in unnecessary MCE reruns.

7.8.1 Mr Soh Yap Choon opined that historical data may not provide any useful insight.

7.8.2 Ms Wang Jing said that if a true load forecast value was rejected, there would also be negative impact on the market and power system. A retrospective study would inform how likely this would happen.

7.8.3 Mr Soh said that PSO will work with EMC on the methodology and will share with the industry and the Panel the considerations which PSO will take into account in determining the maximum difference under Option 3. Mr Tan Jun Jie added that the PSO’s methodology would also need to cater for forecasting error and contribution by intermittent generation facilities.

7.9 Mr Tony Tan opined that it is better to make Type I error than Type II error. Given that the cost of implementation of Option 3 is not significantly more than that for Option 2, he supported Option 3.

7.10 After all clarifications and comments have been made, Chairman put the proposal to a vote.

The Panel **unanimously supported** the recommendation to a) support the proposed solution that adopts Option 3, b) request that the PSO provide the methodology for determining the fixed maximum difference under Option 3 and c) task EMC to draft the relevant rule modifications.

8. **Appointment of Technical Working Group**  
(Paper No. EMC/RCP/100/2018/06)

Ms Qin Wei Xiao recapped that the Technical Working Group (“TWG”) is an industry-resourced group, appointed by the RCP for a 2-year term, which assists the RCP in examining technical market rule changes (typically relating to the Market Clearing Engine (“MCE”) formulation). The TWG comprises eight members as follows:

- Four experts based on nominations from Market Participants (“MPs”)
- One person nominated by the PSO
- One person nominated by the Transmission Licensee
- One MCE expert nominated by EMC
- Chairperson nominated by EMC
8.1 Ms Qin informed the Panel that two vacancies have arisen as a result of the resignation of:

- Mr Tan Jun Jie (nominated by Senoko Energy) – MP Representative
- Ms Quek Swee Xian (nominated by SP PowerGrid) – Transmission Licensee Representative

8.2 It was noted that EMC had invited MPs who are not the nominating organisation of any current TWG member, to nominate a person to replace Mr Calvin Tan. Ms Chu Xiao En was nominated by SP PowerGrid to replace Ms Quek Swee Xian as the Transmission Licensee Representative. Candidates to be appointed to fill these vacancies will serve the remaining term of the current TWG, from 17 January 2018 to 31 December 2018.

Two nominations for experts nominated by MPs were received. Based on the standardised CVs received, EMC evaluated the extent to which the nominees possess each of the competencies and experience in the TWG Selection Criteria. Greater weight was given to components that directly relate to dispatch and price discovery processes, as well as the MCE.

EMC recommended that the Panel appoint the following to the TWG for period from 17 January 2018 to 31 December 2018:

- Ms Lim Xingyi (MP Representative)
- Ms Chu Xiao En (Transmission Licensee Representative)

8.3 The Panel **unanimously supported** EMC’s recommendation.

9. **Date of Next Meeting**

The 101st RCP Meeting will be held on Tuesday, 13 March 2018.

There being no other matters, the meeting ended at 11.30 a.m.

**Toh Seong Wah**
Chairman

Minutes taken by:
Angeline Tan
Corporate Secretarial Executive