MINUTES OF THE RULES CHANGE PANEL
80th MEETING
HELD ON TUESDAY, 12 MAY 2015 AT 10.05AM
AT ENERGY MARKET CO. PTE LTD
238A THOMSON ROAD #11-01
NOVENA SQUARE, SINGAPORE 307684

Present: Paul Poh (Chairman) Lawrence Lee
Soh Yap Choon Lim Han Kwang
Daniel Lee Phillip Tan
Luke Peacocke Sean Chan
Toh Seong Wah Grace Chiam
Priscilla Chua Marcus Tan

Absent with apologies: Dr. Toh Mun Heng Dallon Kay
Frances Chang

In Attendance: Wang Jing Lucia Loh
(EMC) Serena Ho Jo Ong

1.0 Notice of Meeting

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

2.1 Confirmation of Minutes of the 78th RCP Meeting

The Minutes of the 78th RCP meeting held on 10 March 2015 were tabled.

The Panel requested EMC to indicate that the name “Mr. Lee” be referred to as “Mr. Daniel Lee” throughout the Minutes. Subject to this amendment to the Minutes, the RCP approved the Minutes.

(The Panel invited Ms. Tan Phaik Kim, CFO of EMC to the meeting)

2.2 Confirmation of Minutes of the 79th RCP Meeting – EMC’s Proposed Budget for FY2015/16

The Minutes of the 79th RCP meeting held on 9 April 2015 were tabled.

There are no amendments to the Minutes and the RCP approved the Minutes.

2.2.1 Matters Arising from the Minutes of the 79th RCP Meeting – EMC’s Proposed Budget for FY2015/16

The Panel noted that all matters arising from the 79th RCP Meeting as listed were completed.
(Ms. Tan Phaik Kim, CFO of EMC left the meeting)

3.0 Monitoring List

The Panel noted the contents of the paper.

4.0 Summary of Outstanding Rule Changes

The RCP noted the summary of outstanding rule changes.

5.0 Rules Change Work Plan Status Update

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

6.0 Provision of Regulation by Batteries
(Paper No. EMC/RCP/80/2015/321)

Ms. Jo Ong presented the rule change proposal to enable the participation of batteries in the regulation market. The proposed participation of batteries in the regulation market will be beneficial to the market with the improvement of system security and market efficiency. The proposal was first tabled at the 71st RCP Meeting, where the Panel agreed to consider the proposal only after the PSO's approval of the first proposed dispatch mechanism.

Ms. Ong introduced the proposed changes to enable the participation of batteries in the regulation market of the SWEM, as well as how the PSO-approved dispatch mechanism works for batteries to provide regulation throughout a dispatch period. At the 26th TWG meeting, the TWG unanimously supported the proposed rule modifications.

Mr. Phillip Tan enquired about the dispatch mechanism's concern with the battery being fully charged. Ms. Ong explained that for regulation, the provider is required to adjust its output in both directions unlike providing reserve which would only need battery to discharge. Ms. Wang Jing elaborated that the system's needs may be in either direction and that the grid frequency may require the battery to charge or discharge. The Chairman added that when the battery is fully charged, it is no longer able to provide regulation in the downward direction by further charging (if the grid frequency rises above 50Hz).

Mr. Luke Peacocke enquired about whether a battery will be subject to the dispatch mechanism when it is not scheduled for regulation. Ms. Ong responded that only scheduled batteries will be expected to adhere to their approved dispatch mechanisms. Mr. Soh Yap Choon elaborated that this is identical to conventional generators which will be taken out of AGC when not scheduled for regulation in a given dispatch period. Mr. Peacocke further questioned whether there is a qualification check to ensure that a battery is not fully charged or discharged before scheduling it for regulation in the upcoming dispatch period.
Ms. Ong confirmed that there will not be such qualification check in place. Mr. Soh clarified that the PSO will consider a scheduled battery non-compliant with dispatch instructions if it were to be fully charged or discharged in the dispatch period.

In response to Mr. Daniel Lee’s concern about the potential increase in system demand that would not be captured by the current load forecast methodology due to batteries needing to be charged after a sustained low frequency event, which could be significant in the future when the system-wide installed capacity of batteries exceeds a certain threshold, Mr. Soh commented that it is unlikely for batteries, being small and distributed resources, to be charging all at the same time. Mr. Daniel Lee pointed out that after a sustained low frequency event, batteries could due to responding to the event be in a discharged state and want to recharge to be able to provide regulation again. The Chairman’s view was that the load forecast given by the PSO would already have taken into account the consumption of batteries since the load forecast is derived from generation output which would effectively have taken into account all consumption. Mr. Daniel Lee explained that the current load forecast methodology would not suffice as it relies on historical values. Mr. Soh agreed that to address Mr. Daniel Lee’s concern, a mechanism may need to be put in place if battery’s installed capacity is large to adjust or stagger the charging by batteries after a system contingency in future. However, he also clarified that this should not be an issue at present.

[Post Meeting Note:
PSO did an assessment on point raised by Mr. Daniel Lee. As it takes time for battery to charge (similar to the ramping up of a generating unit), hence considering the above as well as diversity that not all batteries maybe charging the same time, the impact on increase in system demand should be gradual one and not a ‘sudden’ or ‘step’ increase.]

Ms. Ong shared that the estimated time and cost for implementation of the proposal is 9 calendar weeks and $47,085 respectively. Mr. Toh Seong Wah highlighted that the implementation cost is covered by the EMC’s budget.

Mr. Lim Han Kwang asked if a different classification for batteries can be considered since they are neither conventional generators nor loads. In addition, he added that the transmission licensee is uncertain on the nature of the connection agreement and the charges including use of system (UOS) charges applicable to batteries. The Chairman replied that SPPA should clarify with the EMA regarding its concerns and requested for a deadline by which SPPA can update the Panel. Mr. Lim agreed to update the Panel on whether the EMA intends to revise its decision on the classification of battery facilities as generation facilities by 30th June 2015.
Mr. Lim enquired on the gross treatment of energy settlement for batteries. Chairman elaborated that as per the current market design, EMC will expect 2 meter readings from SP Services for battery facilities settling their energy in the wholesale market, namely IEQ for the facility’s injection and WEQ for the facility’s withdrawal in every half hour. As for battery facilities settling their energy in the retail market, they would need to follow the existing practice in the retail market for the settlement of their withdrawal.

Mr. Daniel Lee shared that it is worth noting that batteries may also participate in the market for energy for arbitrage purposes, charging when the energy prices are low and discharging when the energy prices are high.

Ms. Priscilla Chua queried on the lack of a minimum storage capacity requirement for batteries given their limited storage capacities. Ms. Ong highlighted that the PSO does not see a need for such requirement as long as the commissioning battery can deliver its maximum regulation capacity stated in its standing data during commissioning with the PSO.

With regards to EMC’s response that the commercial viability of the participation of batteries should be a concern for potential investors in batteries and not the Panel, Mr. Peacocke expressed his view that rule change proposals should be analysed for both technical and economic feasibility in order to better prioritise them.

The Chairman also commented that this rule modification proposal aims to allow new technologies i.e. interested battery operators to participate in the regulation market with minimum cost to the market.

After all clarifications and comments have been made, the Chairman called for a vote on the issue.

The following Panel members voted to support the rule change modification, subject to SPPA’s response to the Panel by 30th June 2015:

- Soh Yap Choon (Representative of the PSO)
- Toh Seong Wah (Employee of EMC)
- Lim Han Kwang (Representative of the Transmission Licensee class of market participant)
- Marcus Tan (Representative of the Generation Licensee class of market participant)
- Priscilla Chua (Representative of the Generation Licensee class of market participant)
- Sean Chan (Representative of the Retail Electricity Licensee class of market participant)
- Daniel Lee (Representative of the Retail Electricity Licensee class of market participant)
- Phillip Tan (Person experienced in financial matters in Singapore)
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The following Panel members abstained from voting:

- Lawrence Lee (Representative of the Market Support Services Licensees)
- Luke Peacocke (Representative of the Retail Electricity Licensee class of market participant)
- Grace Chiam (Representative of the Generation Licensee class of market participant)

Mr. Luke Peacocke requested for the Minutes of TWG meetings on all proposals which they have reviewed to be included in the rule change proposals for the Panel's information in future.

7.0 Clarification of Timeline for Minimum Stable Load Compensation
(Paper No. EMC/RCP/80/2015/328)

Ms. Loh Lucia informed the Panel that, at the 71st RCP Meeting on 9 January 2014, the Panel supported the rule change on Modelling of Minimum Stable Load (MSL), which introduced (i) the modelling of a generator's MSL in the market clearing engine and (ii) compensation for generators scheduled at MSL

That rule change was approved by the EMA and take effect on 27 August 2015.

This additional rule change proposal is made to clarify that the timeline stated in the previously approved rule change referring to a “T+X” refers to the Xth business days after trading day T.

The Panel unanimously voted to support the rule change modification.

8.0 Eligibility of Energy and Reserve Offers
(Paper No. EMC/RCP/80/2015/CP56)

Ms. Jo Ong presented the paper to review the proposal to extend the revised Beginning of Period (“BOP”) test for qualifying regulation offers to qualifying energy and reserve offers from generation registered facilities (“GRFs”).

Earlier, a rule change proposal revised the proxy for a GRF’s generation level at the BOP in the BOP test for regulation from StartGeneration to ExpectedStartGeneration. This better ensured that scheduled GRFs are capable of providing the service throughout the dispatch period.
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The proposal received prompted EMC to consider the following issues:

Issue 1: Whether StartGeneration should be revised to ExpectedStartGeneration as the proxy for a GRF’s generation level at the BOP in other constraints; and

Issue 2: Whether BOP tests should be introduced to qualify energy and reserve offers as well.

After studying the issues, EMC recommended that the RCP:

- Support revising the proxy for generation level of a GRF at the BOP from StartGeneration to ExpectedStartGeneration in the ramping constraints (Issue 1) for consistency in using the better proxy throughout the MCE; and

- Not support introducing BOP tests for energy and reserve (Issue 2) as the assessment of current feasibility checks for energy and contingency reserve, and current system-wide availability of primary and secondary reserve reveals that BOP tests are unnecessary.

For Issue 1, the Panel unanimously voted to support revising the proxy for generation level of a GRF at the BOP from StartGeneration to ExpectedStartGeneration in the ramping constraints and tasked EMC to draft the relevant rule modifications.

The following Panel members voted not to support Issue 2, which suggest introducing BOP tests for energy and reserve:

- Toh Seong Wah (Employee of EMC)
- Lim Han Kwang (Representative of the Transmission Licensee class of market participant)
- Lawrence Lee (Representative of the Market Support Services Licensees)
- Marcus Tan (Representative of the Generation Licensee class of market participant)
- Priscilla Chua (Representative of the Generation Licensee class of market participant)
- Grace Chiam (Representative of the Generation Licensee class of market participant)
- Sean Chan (Representative of the Retail Electricity Licensee class of market participant)
- Daniel Lee (Representative of the Retail Electricity Licensee class of market participant)
- Luke Peacocke (Representative of the Retail Electricity Licensee class of market participant)
- Phillip Tan (Person experienced in financial matters in Singapore)
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The following Panel member abstained from voting on Issue 2, which suggest introducing BOP tests for energy and reserve:

- Soh Yap Choon (Representative of the PSO)

9.0 Date of Next Meeting

The 81st RCP Meeting will be held on 14 July 2015.

There being no other matters, the meeting ended at 12.20pm.

Paul Poh
Chairman

Minutes taken by:
Eunice Koh
Senior Executive - Corporate Secretariat