

**MINUTES OF THE RULES CHANGE PANEL
135th MEETING
HELD ON THURSDAY, 20 JULY 2023 AT 10.30AM
AT ENERGY MARKET CO. PTE LTD
4 SHENTON WAY #03-01
SGX CENTRE 2, SINGAPORE 068807**

Present:	Toh Seong Wah (Chairman) Henry Gan Teo Chin Hau Tony Tan Tan Chian Khong	Sherman Toh Calvin Quek Song Jian En Fong Yeng Keong
----------	--	---

Absent with Apologies:	Rachel Su Huifen Dr Toh Mun Heng Matthijs Jan Guichelaar	Soh Yap Choon Cheong Zhen Siong
------------------------	--	------------------------------------

In Attendance: (EMC)	Poa Tiong Siaw Vincent Wise Fernanda Tham	Wang Jing Lim Chern Yuen Li Zhenhui
-------------------------	---	---

Minutes of 134th RCP Meeting – 20 July 2023

Action

1. Notice of Meeting

The Chairman called the meeting to order at 10.30am. The Notice and Agenda of the meeting were taken as read.

2. Confirmation of Minutes of the 134th Rules Change Panel Meeting

The Minutes of the 134th Rules Change Panel (“RCP”) meeting, held on 18 May 2023, were approved by the RCP.

3. Update of Monitoring List, Rule Change Submission, and RCP Workplan

3.1. Ms Wang Jing presented the Update of Monitoring List, Rule Change Submission, and RCP Workplan for period from December 2022 to January 2023 to the meeting.

3.2. The RCP noted the updates from EMC.

4. Modelling of Energy Storage Systems – Progress Update

4.1. Mr Lim Chern Yuen presented the potential options related to incorporating State-of-Charge (SoC) into Market Clearing Engine (MCE) modelling, the Technical Working Group’s discussion on them, and the next steps.

In particular, the three options considered were:

Option 1: Status quo with gate closure exemptions related to SoC limitations

Option 2: SoC data transmission from PSO to EMC

Option 3: SoC data transmission from ESS operators to EMC

- 4.2. Mr Sherman Toh asked whether ESS operators are defined as standalone ESS operators, or also include operators of embedded ESS facilities.
- 4.3. In response to Mr Toh's query, Ms Wang Jing said that EMC considers ESS as generation registered facilities (GRFs), which can either be set up as a standalone or embedded facility.
- 4.4. Mr Toh further clarified whether ESS modelling within the MCE would also cover ESS at the distribution level, which can be potentially tagged to a small solar facility. Ms Wang replied that such setups are becoming increasingly prevalent, and can be looked into as one of the upcoming items in the rule change workplan.
- 4.5. Mr Calvin Quek raised concerns on Option 3, as it requires battery operators to directly provide data to EMC. He noted that this might work if there is only one ESS operator, but may be challenging if there are multiple exchanges between different battery operators and EMC. Therefore, Option 2, where SoC data of all ESS are provided to EMC by PSO, would be more viable pending PSO system upgrade.
- 4.6. Mr Quek further queried whether PSO currently acquires SoC data from ESS operators. Mr Lim Chern Yuen replied that based on EMC's understanding, SoC data is transmitted to PSO for every ESS facility via a remote terminal unit ("RTU") every four seconds. However, there are concerns that the data might not be sufficiently accurate for market dispatch purposes.
- 4.7. Mr Poa Tiong Siaw added that one key concern discussed by the TWG when using SoC data for the MCE is the quality of the data. He added that the 3 options presented are still at the exploratory stage, requiring further study by the TWG before reporting back to the RCP. Mr Poa also mentioned that cost and time estimates are required for each option, and it would take one or more TWG meetings to deliberate and firm up any recommendation.
- 4.8. Mr Song Jian En queried whether PSO can provide SoC data to EMC outside of the EMS upgrade cycle. This will be in line with the current concept of PSO being the single source of dispatch related data. Mr Lim replied that EMC will need to check with PSO on this and RCP's comments will be shared with the TWG at its next meeting.

5. **CP92 – Publication of Filtered Reserve and Regulation Offer Curves**
- 5.1. Mr Lim Chern Yuen presented the concept paper on CP92 – Publication of Filtered Reserve and Regulation Offer outlining the background, identified issues, analysis, consultation and conclusion.
- 5.2. Mr Lim highlighted the conclusion that EMC proposes not to filter reserve and regulation offer curves, instead encouraging MPs to submit ancillary service offers that accurately reflect their units' physical capability.
- 5.3. Mr Poa Tiong Siaw added that EMC has always championed information transparency. However, there was no compelling case for publishing filtered offer curves to be made. Importantly, the benefits cannot be clearly established due to the substantial limitations of filtering. Hence, the costs to be incurred for required system changes cannot be justified.
- 5.4. Mr Calvin Quek commented that based on the extensive analysis conducted by EMC (e.g., attempting to filter via incorporating facility constraints and assessing its effectiveness, explanation on why filtering cannot mirror co-optimisation effects), he is in agreement with the conclusion.
- 5.5. Chairman proposed to move it to decision and called for votes by show of hands from the panel. The panel unanimously supported the proposal not to filter reserve and regulation offer curves.

There being no other matters, the meeting ended at 11.09am.

Toh Seong Wah
Chairman

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