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.

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 Mr. Sim Meng Khuan from YTL PowerSeraya Pte. Ltd. to the RCP as a representative of the Retail Electricity Licensee class of market participant.

   The Chairman welcomed Mr. Sim Meng Khuan to the 116th RCP Meeting.

2.1 **Confirmation of Minutes of the 114th RCP Meeting**

   The Minutes of the 114th RCP meeting, held on 10 March 2020, were noted and the RCP approved the Minutes.

2.2 **Confirmation of Minutes of the 115th RCP Meeting**

   The Minutes of the 115th RCP meeting, held on 3 April 2020, were noted and the RCP approved the Minutes.

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.

(Mr Marcus Tan joined the meeting.)

5.1 Mr. Teo Chin Hau said that the initial commencement date for the proposed review of constraint violation penalty structure is Q1 2020 and noted that it has now been re-scheduled to commence in Q1 2021. Given the importance of the proposed review, he requested for the review to be scheduled to start in 2020. Mr. Poa Tong Siaw replied that the Market Administrative team has started working on identifying and defining CVP issues. Market Administration estimates to present their recommendations in Q1 2021.

6. **Compensation Guidelines for Interruptible Load Facilities Interrupted for Prolonged Duration**

(Paper No. EMC/RCP/116/2020/CP81)

Mr. Joash Seng presented the proposed compensation guidelines for Load Registered Facilities (“LRF”s) providing Interruptible Load (“IL”) services that are interrupted beyond 120 minutes. He gave the background of the proposal and presented EMC’s analysis.

6.1 Mr. Joash Seng went on to present the following compensation options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Based On</th>
<th>Approach</th>
<th>Reference Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Market Energy Price (“MEP”) / Nodal Price</td>
<td>Market-based, System perspective</td>
<td>PJM, NYISO (FERC)</td>
</tr>
<tr>
<td>1b</td>
<td>Uniform Singapore Energy Price (“USEP”)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Variable Cost of Marginal Generating Unit (“MGU”)</td>
<td>Cost/Market-based, System perspective</td>
<td>KPX (South Korea)</td>
</tr>
<tr>
<td>3</td>
<td>Individual LRF Emergency Strike Prices / Energy Bid – Energy Price</td>
<td>Cost-based, Individual resource perspective</td>
<td>IESO (Ontario); PJM, NYISO</td>
</tr>
</tbody>
</table>

6.2 Mr. Joash Seng informed the RCP that the concept paper was published on 8 April 2020 for consultation. EMC has responded to comments received from 6 stakeholders, namely EMC Market Operations, Enel X, Keppel, Power System Operator, PacificLight Power, and Senoko.

6.3 In response to Mr. Marcus Tan's query about the current level of Interruptible Load (“IL”) provided by the Load Registered Facilities (“LRF”s), Mr. Joash Seng said that total capacity is under 10MW.
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<table>
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<th>Actions</th>
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<td><strong>6.3.1</strong></td>
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| **6.3.2** | Mr. Marcus Tan further queried on the recovery of the compensation cost. Mr. Joash Seng replied that the compensation cost will be recovered from the market through the Monthly Energy Uplift Cost and the proposal will use existing processes to recover the cost. He added that IL compensation guidelines should still be written to tide through the next 2 to 3 years before the first delivery year of the FCM. |

| **6.4** | Mr. Teo Chin Hau suggested adopting a variant of Option 2 using marginal unit price as compensation instead. He reasoned that the alternative supply likely comes from the marginal generating unit. Prolonged interruption usually happens during emergencies where the USEP captures both the cost of providing energy and the opportunity cost of providing contingency reserve or regulation. This may add up resulting in overcompensating the LRFs. Mr. Joash Seng said that using the highest marginal energy price prevailing in the market may be an option and is more aligned with Option 1a. |

**Post Meeting Note:**

*Mr. Teo clarified that he was suggesting for the LRF to be compensated based on the offer curve of the marginal generator unit – which is a good approximation of the avoided generation cost. He requested for EMC to study this possibility as part of the meeting follow-ups.*

| **6.4.1** | With regard to Mr. Teo Chin Hau’s suggestion, Ms. Wang Jing shared the potential issues that an LRF may face in identifying the marginal unit’s offer price. She said that in a price separation scenario, the marginal unit will be different depending on where the LRF is located. She added that it is also probably more tedious administratively for the LRF that is seeking compensation to retrieve the relevant data. Essentially, only EMC would have the offer price data and the LRF would not be able to identify the marginal unit price by themselves. |

| **6.4.2** | Mr. Teo Chin Hau further suggests using the USEP after deducting the contingency price as a gauge because the USEP could be affected by the cost of ancillary services. He said that in principle he supports Option 1a with fine-tuning to reflect the true value of energy for the affected periods. |

| **6.5** | In response to Mr. Y K Fong’s query about the proposal’s impact on USEP for consumers, Mr. Joash Seng replied that the prevailing USEP in the market for the affected period will not be adjusted as it is only being used as a basis for determining the compensation amount. The cost of the compensation will be recovered from the market through the Monthly Energy Uplift Charge. |
Mr. Senthil Kumar asked about the frequency that ILs are being asked to be curtailed in excess of what they are scheduled for. Mr. Joash Seng replied that the occurrence of prolonged interruption is not frequent but when it does occur, the potential cost or damage to the LRFs are significant. For example, a majority of the LRFs in the market are using district cooling plants which may have service contracts with sensitive manufacturing industries such as electronics plants. These plants require stringent temperature settings for cooling. Most of the district cooling plants cannot operate beyond 4 to 6 hours of prolonged interruptions lest service standards are affected. For that, the LRFs are liable for liquidated damages.

Mr. Senthil Kumar suggested for LRFs to migrate to a Demand Response scheme instead. Mr. Joash Seng said that is the choice of each LRF. Nevertheless, the Demand Response scheme poses some challenges for LRFs.

In response to Mr. Senthil Kumar’s query on the number of IL providers in total, Mr. Joash Seng said that there are currently about 5 IL facilities registered with 1 new entrant joining the market. It was noted that in other jurisdictions, data centres are key players as they run on backup generators which could be another reliable source for contingency reserves. With expected rise in the siting of data centres in the medium to long term, more IL providers are expected to join the market.

The Chairman commented that the cost and effort to implement IL compensation guidelines should be taken into consideration when deciding whether to defer this proposal until clarity on FCM is established. Mr. Joash Seng said that the cost and effort are relatively low because information required are publicly available and easy to obtain. Minimal system change is required as the process for compensation is already established. He added that the guidelines and required rule modifications are expected to be straightforward to draft.

Mr. Soh Yap Choon queried if the current compensation guideline is documented as part of the Market Rules. Mr. Joash Seng replied that the guidelines are not a part of the Market Rules and served only as a reference. Mr. Soh further queried about the approval process for the proposed compensation guideline. Mr. Poa Tiong Siaw said that the proposed guidelines will undergo the RCP approval process where the RCP will task EMC to draft the relevant changes to the guideline. EMC proposes that a reference be made in the Market Rules to the existing compensation guidelines as well. He added that the current compensation guidelines are not published as an independent document but instead resides in one of the RCP paper that was done several years ago. EMC would like to standardise this and publish both sets of compensation guidelines as a stand-alone document on EMC website for MPs’ easy reference.

Mr. Soh Yap Choon shared the current compensation process for a generation licensee.
6.10 Mr. Sim Meng Khuan asked if the IL must prove that they suffered losses before they can make a claim. Mr. Joash Seng said that there is no need to prove losses based on the current proposal. He pointed out that it would be difficult for IL to provide the true cost for true losses and verification of these estimates is also not practical. Mr Sim commented that this could result in compensation being made to an LRF which did not suffer any loss.

6.11 Mr. Sean Chan commented that the IL losses could also well be higher than the compensation due to the nature of their business. He asked if the IL has the option to choose whether it can continue to be interrupted beyond the 120 mins under the Market Rules or the compensation guidelines. Mr. Joash Seng replied that there is currently no such option. It is deemed as non-compliance if the IL choose not to comply and will be subjected to financial penalty.

6.11.1 Mr. Sean Chan further queried if PSO will provide any early notice to the IL before they are interrupted beyond 2 hours, and if the IL can inform PSO earlier should they have problem to be continued to be interrupted. Mr. Soh Yap Choon added that PSO will issue an advisory notifying that IL can restore their load once the system has stabilised. Currently there is no process for IL to inform PSO earlier that they cannot be interrupted. PSO’s primary objective is to keep the lights on and ensure secured supply. Load cannot be restored if there is insufficient capacity in the system to stabilise the power system.

6.12 Ms. Carol Tan asked if there are any precedents in the past where the IL was on prolonged interruption beyond 120 minutes. Mr. Joash Seng replied that there have been instances in the past and based on historical data (year-2018 and 2019), about 10% of activation involved prolonged interruption. He added that the longest prolonged interruption lasted up to 14 periods, which is close to 7 hours.

6.13 Mr. Poa Tiong Siaw summarised the discussion and proposed that the Panel task EMC to:
- write compensation guidelines based on Option 1;
- propose the use of a reference price between a form of MEP, the USEP or a variant of it, as the basis for compensation; and
- update the Panel with a further analysis at the next meeting

6.14 The Chairman called for a vote to adopt Option 1, task EMC to draft compensation guidelines based on Option 1, and propose at the next RCP meeting the use of a reference price (i.e. the MEP, the USEP or a variant) as the basis for the compensation.

The following RCP members gave in-principle support of the proposal:
- Mr. Henry Gan (Representative of EMC)
- Mr. Soh Yap Choon (Representative of the PSO)
- Mr. Teo Chin Hau (Representative of Generation Licensee)
- Ms. Carol Tan (Representative of Transmission Licensee)
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- Mr. Sean Chan (Representative of Retail Electricity Licensee)
- Mr. Senthil Kumar (Representative of Retail Electricity Licensee)
- Mr. Matthew Yeo (Representative of Wholesale Electricity Trader)
- 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 members did not support:

- Mr. Sim Meng Khuan (Representative of Retail Electricity Licensee)

The following RCP member abstained from voting:

- Mr. Tony Tan (Representative of Generation Licensee)
- Mr. Marcus Tan (Representative of Generation Licensee)

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