

**MINUTES OF THE RULES CHANGE PANEL  
48<sup>th</sup> MEETING  
HELD ON TUESDAY, 9 MARCH 2010 AT 9.35AM  
AT ENERGY MARKET CO. PTE LTD  
238A THOMSON ROAD #11-01  
NOVENA SQUARE, SINGAPORE 307684**

Present:	Dave Carlson Yeo Lai Hin Sim Meng Khuan Chan Hung Kwan Annie Tan Lawrence Lee	Kenneth Lim Luke Peacocke Philip Tan Michael Lim Robin Langdale
Absent with apologies	Dr. Goh Bee Hua Ng Meng Poh	Dallon Kay
In Attendance: (EMC)	Paul Poh Mok Xin Ying Henry Wee	Tan Liang Ching Nerine Teo Wang Jing

**1.0 Notice of Meeting**

The Chairman called the meeting to order at 9.35am. The Notice and Agenda of the meeting were taken as read.

**2.0 Appointment of Representative of the Generation Licensee class of Market Participant.**

The Panel was informed that the EMC Board, at their 28 January 2010 meeting, approved the appointment of Mr. Luke Peacocke of Senoko Energy to the Rules Change Panel, effective 01 February 2010 to 31 December 2011.

2.1 The Chairman welcomed Mr. Luke Peacocke to the 48<sup>th</sup> RCP meeting.

**3.0 Confirmation of Minutes of the 47<sup>th</sup> Rules Change Panel Meeting**

The Minutes of the 47<sup>th</sup> Rules Change Panel meeting held on Tuesday, 5 January 2010 was tabled.

There being no amendments to the Minutes, the Rules Change Panel approved the Minutes.

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**Action**

**4.0 Matters Arising**

The Panel noted that, as outlined, the follow-up action was completed on the matters arising.

**4.1 Item 4.0 – Distribution of Reserve/Regulation Payments**

The Panel was informed that the automated Pre-settlement Reserve/Regulation Filter option was infeasible, as PSO had responded that they may not be able to submit data on non-providers within the 5-day timeline, as MPs may need time to retrieve data. As such, EMC will have to rely on the manual option to claw back reserve/regulation payments from non-providers, after payment has already been made.

Mr. Philip Tan queried if it is feasible to raise the threshold of \$600,000 to \$1.5m of reserve/regulation payments to non-providers. Mr. Poh informed that the Panel had earlier decided to monitor reserve/regulation payments to non-providers, using a threshold of 1% of total reserve/regulation payments in the market.

**4.2 Item 6.0 – Modeling of Multi-unit Contingency Risk  
(Paper No. EMC/RCP/47/2010/CP17)**

The Panel was informed that on 21 January 2010, EMC met with the EMA and explained the proposal to model MUC risks into the MCE, and asked if these risks would already be taken into account in EMA's on-going Holistic Review of the Electricity and Gas Systems.

EMA was of the view that:

1. The design criteria for the electricity transmission network, as set out in the Transmission Code, is not covered in the Holistic Review. This means that, with regard to the three types of MUC risks identified in the concept paper, Type 2 "multiple GRFs connected through one single transmission facility" risk will not be covered in the Holistic Review.
2. The RCP should proceed to discuss the mitigation measures for the three types of MUC risks i.e. concurrent with the Holistic Review being conducted.

Mr. Tan informed that it would be useful for the Panel to know how PSO applied the Risk Adjustment Factor (RAF) mechanism. This would enable the Panel to make comparisons between the RAF and MUC methods. Mr. Yeo Lai Hin informed that the PSO will share information on the RAF at an appropriate forum.

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Mr. Chan Hung Kwan queried if the proposal was fundamentally a system security or reserve cost allocation issue. Mr. Poh informed that the study was firstly a security issue; the current procurement of reserves is based on the largest single scheduled unit, and PSO is concerned that this could be inadequate as certain contingency risks could be even higher than the risk posed by the largest unit. A consequence of the MUC method would be how reserve cost had to be allocated, and the proposed allocation is inline with the current reserve cost allocation principle. Thus, in the case of Type 2 (Transmission Risk) MUC, reserve cost is allocated to the Transmission Licensee since it is the causer of this risk.

Mr. Yeo Lai Hin commented that currently in the event of MUC, PSO might have to use RAF instead. It is therefore more appropriate that the MUC method should be compared against the RAF method in the CBA study. Mr. Poh informed that as explained in the paper, the RAF had not been used in past MUC events and therefore should not be used for comparison purpose. Notwithstanding, the results of the RAF method were included in the paper. The Panel will discuss these results at the next RCP meeting

EMC

Mr. Chan requested for clarity from EMA if the reserve costs arising from the proposal should be charged to the Transmission Licensee. The Panel agreed to seek the EMA's view on this issue.

EMC

The Panel also requested PSO to share more information on the RAF method at the next meeting.

PSO

### 5.0 Monitoring List

The Panel noted the contents of the paper.

Mr. Tan enquired if the monitoring list would reflect the amount of vesting contract that were tendered out. Mr. Poh informed that this information is currently not available, and EMC will verify with the EMA if they are prepared to release the information.

EMC

### 6.0 Summary of Outstanding Rule Changes

The Panel noted the contents of the paper.

### 7.0 Rules Change Workplan Status Update

Mr. Peacocke requested EMC to consider whether EMC could collect the Vesting Relief option fee from non portfolio generators and pay them to portfolio generators, instead of the fee being settled bilaterally between them. This is because portfolio generators were concerned with the risk of default in such bilateral settlements.

EMC

The Panel noted the rest of the contents of the paper.



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**8.0 Compensation for Excess Regulation**

(Paper No. EMC/RCP/48/2010/CP22)

Ms. Nerine Teo informed the Panel that at the 46<sup>th</sup> RCP meeting, EMC presented a concept paper which established when regulation provision is considered to be in excess of a generator's schedule.

The RCP requested for further analysis to be conducted, specifically to:

- evaluate whether there is over-provision of regulation across the whole market
- select some periods for more detailed analysis

The results of the analysis showed that excess regulation provision on a system-wide basis was insignificant and there was no strong justification to provide compensation to regulation providers. However, even without significant excess regulation provision at the system-wide level, there could be significant excess regulation provision by individual GRFs due to:

- Differences in responsiveness of GRFs to regulation needs
- As such, there is a case to consider addressing this issue by adjusting existing regulation payments to GRFs based on their regulation provision responsiveness (REF)
- Consumers still bear the same amount of regulation payments under the proposed REF methodology.
- However, each GRF is now assigned an REF used to determine the regulation payment amount that it receives.
- More responsive GRFs are assigned higher REFs and thus receive a higher share of regulation payments.

Ms. Teo informed that the REF can be determined in 2 ways:

1. Based on PSO's **technical assessment** of each individual GRF's effectiveness. However, PSO will need to verify if it is viable for PSO to determine the effectiveness of each GRF's regulation provision using technical test procedures and assign these GRFs into different regulation provider groups.
2. Introduce Regulation Effectiveness Factors based on a **historical assessment** of each individual GRF's 1-year historical regulation provision pattern and the results would be used to determine a unique REF for each GRF to be applied in the subsequent year.

EMC recommended that the RCP:

- a) **do not implement** a compensation regime for regulation over-provision; and
- b) decide on whether to **introduce a Regulation Effectiveness Factor approach** into the SWEM



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Mr. Philip Tan commented that the excess regulation figure quoted in the previous paper represented 25.97% of all regulation payments. However, on a system-wide basis, the net excess regulation payments represented only 0.89% of all regulation payments.

Mr. Sim Meng Khuan commented that since the study was conducted in 2009, the economic downturn could have affected the excess regulation results.

Mr. Tan asked if there was another way to set the overall threshold for over provision. Mr. Poh replied that 5% could be a reasonable level, since the excess regulation measurements were based on SCADA equipment which has a measurement error of 5-10%.

The Panel agreed to support EMC's recommendation (a) **not to implement** a compensation regime for regulation over-provision.

Mr. Tan asked EMC to find out the acceptable levels of excess regulation tolerance in other markets.

EMC

The Panel requested for EMC to investigate how the REF could be computed. Mr Yeo Lai Hin commented that as SCADA reading is not of revenue quality, it should not be used for such assessment. EMC should use gross metered data instead. Under recommendation (b) to introduce a Regulation Effectiveness Factor approach into the SWEM, Mr. Poh informed that EMC will need to obtain gross metered data from the MSSL. Mr. Robin Langdale suggested computing the REF for a year.

EMC/MSSL

The Panel also asked EMC to evaluate the feasibility of monitoring the amount of excess regulation.

EMC

### 9.0 Proposed Extension of Type 4 Price Re-runs (Paper No. EMC/RCP/48/2010/CP24)

Mr. Tan Liang Ching informed that the new proposal suggested extending existing Type 4 price reruns to cases where transmission lines had reached their maximum capacity in the MCE model, but not so in physical reality

In 2008, EMC proposed to remove Type 4, with the support of RCP and EMC Board.

EMA did not approve the proposal for the following reasons:

- if price separation is due to real constraints resulting in load shedding, we should not use Type 4 re-run to mute the price signal. However, if price separation is due to modeling imperfection, we should then be prepared to use Type 4 re-runs.



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- The 19 Jan 2008 price separation incident resulted in consumers having to bear a higher weighted average USEP of \$590/MWh before Type 4 re-run. After Type 4 re-runs, price separation was reduced and the average USEP fell to \$401/MWh for the day.
- The outcome of paying a higher weighted average USEP is not justifiable and would undermine the interests of consumers.

Given Singapore's low demand volatility and the likely costs of implementing an ex-post pricing regime, EMC proposes to retain the current ex-ante pricing arrangement. In this case, it would not be consistent with market principles to extend Type 4 price reruns to cases where transmission lines were found to be unconstrained ex-post. Thus, EMC recommended that the Panel do not support the proposal to extend Type 4 price re-runs.

Mr. Philip Tan commented that EMA did not approve the proposal to remove Type 4 price re-run because it is useful in correcting modelling imperfections. In that same vein, it is therefore reasonable to extend Type 4 price re-run to cases where transmission lines were found ex-post not to have exceeded their limits.

Mr. Tan Liang Ching responded that EMC's starting point is that Type 4 re-run was inconsistent with SWEM's ex-ante pricing. From this angle, EMC is of the view that Type 4 re-run should not exist in the first place, must less be extended to cases where transmission lines were found not to exceed their limits ex-post. If transmission constraints or network status were to be determined using ex-post inputs, then we should similarly use the ex-post values of all other variables, which essentially moves SWEM to a pure ex-post pricing regime.

Mr. Philip Tan gave the scenario whereby there is price separation and after investigation, PSO confirmed that the line did not reach its limit nor was there load shed, Since ex-post there was no constraint, he agreed with EMA that there should be a re-run.

Mr. Tan Liang Ching replied that in this form of price re-run, it would be unfair for gencos on the other side of the line who might have run up their more expensive generation, only to receive lower USEP prices following the price re-run. Mr. Philip Tan countered that in such cases, they could seek compensation under the Market Rules.

Mr. Paul Poh commented that if price re-runs were conducted when transmission lines were constrained ex-ante but unconstrained ex-post, then for consistency, EMC would have to conduct price re-runs for the reverse – where lines were unconstrained ex-ante but constrained ex-post.

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The Panel considered the proposal and voted as follows:

Those who voted to extend Type 4 price re-runs:  
Ms. Annie Tan, representative of retail electricity licensee  
Mr. Sim Meng Khuan, representative of generation licensee  
Mr. Philip Tan, representative of generation licensee

Those who voted not to extend Type 4 price re-runs:  
Mr. Kenneth Lim, representative of EMC  
Mr. Luke Peacocke, representative of generation licensee  
Mr. Lawrence Lee, representative of market support services licensee  
Mr. Chan Hung Kwan, representative of transmission licensee  
Mr. Michael Lim, representative of consumers of electricity in Singapore

Those who abstained:  
Mr. Robin Langdale, person experienced in financial matters in Singapore  
Mr. Yeo Lai Hin, representative of the PSO

By majority vote, the Panel decided **not to** extend Type 4 price re-runs to cases where transmission lines have reached their limit in the market clearing engine model but did not do so in reality.

**10.0 Rule Change Work Plan 2010/11**  
(Paper No. EMC/RCP/48/2010/07)

Ms. Nerine Teo presented a consolidation of the achievements of the Rules Change Panel (RCP) against the agreed Rules Change Work Plan for 2009/10.

Out of the 14 placed in the “within 12 months” category, the RCP has completed work on 8 of them and significant progress has been made on the remaining 6 issues.

In addition, the Panel also addressed other issues that were not in the work plan, including:

- Review of "Application Form for Load Facility Registration" & "Request for Transfer of Load Registered Facility"
- Change in Singapore Wholesale Electricity Market's (SWEM) Settlement Clearing Bank,
- Disqualification of Banker's Guarantees Issued by the SWEM Clearing Bank as Credit Support
- Conflict of Interest Management for the MSCP
- Amendments to the Requirements for Transfer of Registration of Registered Facilities
- Extension of Exemption to Allow Affiliates of Temasek Holdings to be Represented on the RCP



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The Panel was informed that the Energy Market Authority (EMA) also directed EMC to undertake the following rule changes in the past year:

- Revision of Regulation Price Cap
- Exemption of Contestable Consumers from Licensing to Trade in the Wholesale Electricity Markets
- Tendering out a Portion of the Non-contestable Load

At the 46<sup>th</sup> RCP Meeting, the RCP decided for the work plan exercise to:

- a. Include identities of proposers of new issues
- b. Include an option for stakeholders to indicate if they would like to remove a proposed issue with the collated indicated items for proposed removal presented to the RCP for discussion and decision
- c. Introduce a revised template for “New Issues to be Addressed” to be used for stakeholders to indicate new issues with relevant reasons.
- d. Present ranking results under both “Simple Average” and “Group-Weighted” prioritization ranking methodologies

### **Prioritisation for 2010**

The Panel was informed that EMC presented stakeholders with a list of 29 issues that remained in the work plan agreed to by the RCP in March 2009. Stakeholders brought up 6 additional issues to be included in the work plan for 2010/11 and these are:

1. Review of Standing Probability of Failure (SPF) Computation (proposed by: Sembcorp Power)
2. Demand Side Bidding in the Energy Market (proposed by: Diamond Energy)
3. Differential Allocation of Allocated Regulation Price (AFP) to Load (proposed by: Diamond Energy)
4. Publication of Generation Unit by Capacity (proposed by: Diamond Energy)
5. Review of Economic Incentives for Generation Reliability (proposed by: Energy Market Authority)
6. Differentiate available capacities on Adequacy and Security Assessment (ASA) Report (proposed by: Keppel Merlimau Cogen)

EMC applied 2 methods to determine the overall prioritisation ranking for each issue namely:

1. Simple Average Methodology
2. Group-weighted Methodology

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The approach to prioritisation and the recommended work plan are based on:

- a) ranking;
- b) on-going issues which are already in progress;
- c) four of the top six issues ranked under the 'Group-weighted' methodology were also ranked in the top twelve issues under the 'Simple average' methodology
- d) views of the RCP members; and
- e) proposed issues to be reviewed/removed

**Issues over the next 12 months**

For Issue 30 – Review of Standing Probability of Failure (SPF) computation.

Mr. Yeo Lai Hin requested for this issue to be removed from the work plan, as EMC already has a methodology in place to calculate the SPF. Mr. Paul Poh informed that Issue 30 will only be addressed when Issue 1 – Simultaneous/Consecutive Tripping of Multiple GRFs and Issue 2 – Reserve Requirement to meet largest risk – are addressed.

The Chairman took a vote. Mr. Yeo voted to remove Issue 30 whereas the other Panel members voted not to remove this issue. It was thus noted that Issue 30 will be addressed in conjunction with Issue 1 and Issue 2.

For Issue 3 – Proposed Retention and Extension of Type 4 dispatch Re-runs

The Panel agreed to remove this issue from the workplan, since it was already concluded at the 48<sup>th</sup> RCP Meeting. The Panel thus agreed to move Issue 4 ("Transparency of transmission constraint and translation into dispatch arrangement") into the list of the top 12 issues.

For Issue 17 – Electricity Vending System's (EVS) Impact on Market Rule Changes

The Panel agreed that whether this issue would be moved out of the "Within 12 months" category would be contingent to an update from the EMA on the outcome of the EVS initiative.

It was noted that if Issue 17 was moved out of the "Within 12 months" category on the work plan list, Issue 34 – Review of Economic Incentives for Generation Reliability – will be addressed within the next 12 months instead.

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Note: Following the RCP Meeting, EMA has confirmed that EVS will not be implemented within the next 12 months. As such, Issue 34 will be put in the “within 12 months” category, while Issue 17 will be moved to the “within 13-14 months” category.

For Issue 8 – Differentiation in probability of failure computation for multi-shaft plants and single-shaft plants

The Panel agreed that this issue is linked to Issue 30 and can be addressed together. However, as issue 30 is also contingent on Issue 1 and Issue 2, Issue 8 should still be addressed regardless of the status of Issue 1 and Issue 2.

For Issue 35 – Differentiate available capacities on Adequacy and Security Assessment (ASA) Report

It was noted that this issue will be removed from the work plan, as the PSO and Keppel Energy have agreed to address this issue off-line.

The RCP having considered the 35 issues and EMC’s recommendations, agreed upon the updated work plan and tasked EMC to monitor the progress of the agreed work plan.

Expected completion/ commencement date	Issue No.	Issue Title
Within 12 Months (by March 2011)	1	Simultaneous/Consecutive Tripping of Multiple GRFs*
	2	Reserve Requirement to meet largest risk, not just the largest (scheduled output + reserve) online GRF: Power Station with only one remaining generation connection to the Grid*
	30	Review of Standing Probability of Failure (SPF) computation (Proposed by: Sembcorp Cogen)
	5	Compensation for Excess Regulation*
	6	Modelling of fault level contributions into the MCE*
	12	Obligation to revise offers in the event of complete system outage at EMC
	14	Redefine MCE methodology for determining regulation offers’ eligibility

	15	Engaging Academic Institutions to look at alternative reserve payment methodologies between Interruptible Loads (ILs) and Gencos
	8	Differentiation in probability of failure computation for multi-shaft plants and single-shaft plants
	29	Conflict of Interest for Dispatch Coordinator
	4	Transparency of transmission constraint and translation into dispatch arrangement*
	34	Review of Economic Incentives for Generation Reliability (Proposed by: Energy Market Authority)
Within 13 - 24 months	17	Electricity Vending System's (EVS) Impact on Market Rule Changes
	31	Demand Side Bidding in the Energy Market (Proposed by: Diamond Energy)
	16	Number of business days for Suspension Order Hearing
	22	Generating units scheduled by the MCE to provide regulation reserve must have a minimum scheduled regulation reserve of 5MW
	23	Introduction of tie-breaking
	27	MCE to automatically change reserve limits for Interruptible Load (IL) when taking into account the status of the intertie with TNB
	7	Review of Scarcity Pricing
	11	Composition of RCP
	18	Modeling of on-site ambient temperature into the MCE such that GTs/CCPs' maximum capacity are adjusted dynamically
	10	De-registration of Generation Facilities Within a Market Participant's Premises
	13	New forms of Collateral
	20	Contingency Activation for Interruptible Loads (ILs)
	21	Allocation of Regulation Costs
	32	Allocation of Allocated Regulation Price (AFP) to Load (Proposed by: Diamond Energy)
	9	Overhaul of reserves arrangements
	33	Publication of Generation Registered Capacity by Unit (Proposed by: Diamond Energy)
	24	Review the Need for Detailed Design and Implementation of a Financial Transmission Rights (FTR) Regime
25	Reserve Compensation for Interruptible Loads (ILs)	

	19	Guidelines for Registration and Settlement of GRF/GSF with Alternative Fuels
	26	Incremental Enhancement of Rulebook Drafting
	28	Review the Need for a Rewrite of the Rulebook

\* These are issues which work has already commenced. It makes sense to continue working on them. Hence, they are placed highly in the recommended list of priorities for this reason rather than due to the ranking by stakeholders.

There being no other matters, the meeting ended at 12.35pm.

**Dave E Carlson**  
**Chairman**

Minutes taken by:  
 Eunice Koh  
 Senior Executive – Corp. Secretariat