MINUTES OF THE RULES CHANGE PANEL
28TH PANEL MEETING
HELD ON TUESDAY, 5 SEPTEMBER 2006
AT 10.15AM
AT ENERGY MARKET COMPANY PTE LTD
9 RAFFLES PLACE #22-01
REPUBLIC PLAZA, SINGAPORE 048619

Present
Dave Carlson
Robin Langdale
Kng Meng Hwee
Henry Gan

Dallon Kay
Lim Ah Kuan
Philip Tan Pei Lip
Dr. Daniel Cheng

Absent with
Tay Swee Lee
Koh Kah Aik

apologies
Francis Gomez
Low Boon Tong

By Invitation
Jasmine Ng, SP Services

In Attendance
Paul Poh
Poa Tiong Siaw
Janice Leow

Teo Wee Guan
Wang Jing

1.0 Notice of Meeting

The Chairman called the meeting to order at 10.15am. The Notice and Agenda of the meeting were taken as read.

2.0 Confirmation of Minutes of the 27th Rules Change Panel Meeting

The Minutes of the 27th Rules Change Panel meeting held on Tuesday, 4 July 2006 was tabled and taken as read.

There being no amendment to the Minutes, the Rules Change Panel unanimously accepted and approved the Minutes.

3.0 Summary of Outstanding Rule Changes

The Panel noted the contents of the paper.

4.0 Monitoring List

The Panel noted the contents of the paper.
5.0 Compensation Arising from Market Energy Price Revisions  

The Panel was informed that the EMC Board considered the rule change on 27 July 2006 following the RCP's reconsideration on 4 July 2006.

The Board however decided not to adopt the RCP’s recommendation as the Board determined that the proposed rule change would “impose without due justification significant extra costs on market participants, any class of market participants or the MSSL”, as provided for under section 5.7.1, Chapter 3 of the Market Rules.

The Panel noted the EMC Board’s decision.

Mr. Robin Langdale commented that EMC presented a good example to illustrate how the proposed rule change can provide excessive compensation for a genco. He asked if EMC could give a counter example to illustrate how the proposed rule change could result in a big loss for a genco. If EMC could not find such an example, then it would prove that the proposed rule change would be inappropriate because that would always result in an affected genco ‘making money’.

Mr. Paul Poh informed the Panel that it was not appropriate for EMC to do so since gencos are free to decide what to offer and it is for them to offer in a manner that covers their cost. In addition even if EMC does so EMC would need to know and evaluate what the gencos costs are. Mr. Carlson further substantiated that EMC would not have the relevant information to be able to make such a judgment and it would also not be appropriate for EMC to have that information.

Mr. Philip Tan queried whether, without the rule change, gencos who are adversely affected by a re-run would be able to seek compensation through the dispute resolution process.

Mr. Poh replied that without the rule change there would be no specific provisions in the market rules for compensation to be made where a genco is adversely affected as a result of a re-run. Nonetheless, gencos would be free to take the matter through the dispute resolution process.
Notwithstanding that this proposed rule change was not adopted by the EMC Board, the Panel was informed that EMC is still conducting a review of price revision in SWEM and this would be reported back to the Panel in due course.

(The Panel invited Ms. Jasmine Ng of SP Services to the meeting)

6.0 **Imposition of Default Levy**  

At the 26th RCP Meeting in May 2006, the RCP requested EMC and MSSL to study the feasibility of incorporating vesting contract settlement between MSSL/retailers into wholesale market settlement. EMC and MSSL have jointly studied the technical workability and cost implications of two options to implement it.

**How Option 1 (MSSL provides VCD) works:**

- EMC submits VCRP to MSSL by T+6 business days 5.00 pm.
- MSSL calculates VCDs and submit to EMC by T+7 business days 2.00pm
- EMC generates Preliminary Settlement Statement on T+7 business days 5.00pm.

**Analysis:**

Option 1 has the following drawbacks:

- Calculation of VCRP only on T+6 business days (metering data required) *Earliest that MSSL can receive VCRP is T+6 business days*  
  *VCD can be submitted to EMC only by T+7 business days*
- Lengthen Settlement Cycle *Higher Prudential requirement (1-2 days)*
- Cost of system changes: $860,000
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How Option 2 (EMC calculates VCDs) works:

EMC undertakes the function of calculating VCDs.

Analysis:

The following considerations did not support this option:

• It is the natural position of MSSL to calculate VCDs since it manages the database of all consumer accounts
• Potentially high administrative costs to shift the VCD function to EMC + questionable cost-effectiveness
• Cost of system changes: $790,000

It is conceptually logical to incorporate vesting contract settlement between retailers and MSSL into wholesale market settlement. However, its feasibility depended on a subjective assessment of cost versus benefit because:

1. Substantial cost ($800,000 - $900,000) would have to be incurred and this amount excludes potential administrative costs retailers, MSSL and EMC would have to incur; and

2. The size of the benefit, if quantifiable, is likely to be small. Likelihood of MSSL being a net creditor in the wholesale market is very remote. Even during the June 2004 blackout, MSSL’s net wholesale credit amount was only 2% of the total of all creditors.

In conclusion, given the likely size of the benefit, EMC was not able to justify the costs of implementing either Option 1 or 2.

EMC recommended that the RCP:

a. Not Support either option to incorporate vesting contract settlement between retailers and MSSL into wholesale market settlement; and
b. Given that the RCP had, on 12 January 2006, voted in favour of allocating default levy only to net creditors, support the rule changes tabled at the 14 March 2006 RCP meeting to implement the proposal.
Referring to the June 04 blackout, Mr. Robin Langdale asked if MSSL would still be a net creditor if either of the options were in place.

Mr. Paul Poh replied that if the wholesale market price is positive, we should expect MSSL’s to have a debit balance. A portion will be based on fixed price and a portion will be based on spot price so the natural balance will be a debit balance.

Mr. Dave Carlson remarked that if total generation is below the vested level, the demand for power would be reduced and that would bring down spot prices.

Mr. Poh also informed that demand would be adjusted downwards eventually but there would always be a few periods before load is shed where generators supply will tight resulting in high prices.

Mr. Philip Tan remarked that a retailer could default because of reasons other than high spot prices. Hence, EMC should not be only looking at situations of high spot prices.

Mr. Poh replied that if prices were normal the prudential requirement regime will be able to do its job. Even if a retailer defaults, a default levy is not likely to be imposed.

Ms. Jasmine Ng reiterated MSSL’s position. The “net creditor pay” position is not fair to MSSL because MSSL buys just like any other retailer and is thus a debtor. By virtue of holding vesting credits meant for retailers, MSSL may become a net creditor instead in some situations. There had been five such instances since the vesting contract regime started.

Mr. Langdale suggested that if a default situation arises when MSSL’s is a net creditor, a manual re-calculation be made of MSSL’s position to exclude the transactions arising from passing through of vesting credits. This would put MSSL in the same position as if the whole system was changed as proposed, but would avoid the substantial cost and disadvantages of changing the system. The manual re-calculation might be time consuming but, as the situation will only arise in extreme circumstances or possibly never, it would be a better option.
Mr. Kng Meng Hwee felt this approach would be preferable to Options 1 and 2 as he believed that including vesting credits in determining net creditor position could be done manually and only if there is a default, the market should not bear the cost of a costly system change to automate the process and solely to deal with very improbable situations.

However, Mr. Tan disagreed with Mr. Langdale’s suggestion. He explained that due to the vesting contract regime, generators are not paid market prices for 100% but only 35% of their generation. The remaining 65% is paid at the fixed hedge price and settled with the MSSL. On the other hand, a default on a retailers’ wholesale invoice would have been based on market price for 100% of generation. This is because vesting credits due to retailers are held by the MSSL in the wholesale market, which will be returned to retailers in the retail market. Hence, asking generators to bear a default levy based 100% on market prices would have been unfair. Despite being liable for a default levy, generators would not have claim to the vesting credits “passed on” to retailers outside the wholesale market.

Mr. Carlson concluded that the RCP has asked that the wholesale market take into account vesting contracts in imposing default levies. In order to do so, the wholesale market needs to have some kind of rights on the cash flow of vesting contracts from MSSL to retailers. It has to be reviewed if it is viable through regulation or change in market rules.

The Panel tasked EMC to study and report on the feasibility and impact based on the following three issues:

1. Remove MSSL’s liability for a default levy when it is a net creditor (due solely to vesting credits held on behalf of retailers);
2. Allocate default levies based on the determination of net invoice amount including vesting contract credits of MSSL and retailers only when there is a default; and
3. Withhold vesting contract credits due to the defaulting retailers via MSSL when a default levy is imposed. These vesting credits shall then flow back to wholesale market to derive a net default amount to be imposed to the respective parties.

(Ms. Jasmine Ng left the meeting)
7.0 Appointment of Consumer Representatives to the Rules Change Panel (Paper No. EMC/RCP/28/2006/245)

At the 26th RCP Meeting held on 11 May 2006, the Panel gave its in-principle approval to EMC to propose changes to the market rules to add two consumer representatives to the RCP.

To implement this proposal, the following rule changes are proposed:

1. Increase the size of the RCP to 15 members to include two representatives of electricity consumers.
2. Provide that the two representatives of electricity consumers shall be nominated by organizations from an approved list of organizations.
3. Provide that the nomination/appointment process for and requirements from these two representatives under the Market Rules shall be the same as those applying to existing members.
4. Provide that the approved list of organizations shall be annexed in Chapter 3 of the Market Rules.
5. Use of plain English in drafting changes and re-writing existing cumbersome rules.

EMC recommended that the RCP support the rule modification proposal to amend Section 2, Appendix A and B of Chapter 3 of the Market Rules.

The Panel supported EMC’s recommendation and would make the necessary recommendation to the EMC Board for adoption.

8.0 Incurrence of Group Violation Penalties
(Paper No. RCP/28/2005/259)

EMC proposed a rule change to modify the linear program formulation given in Section D.21 of Appendix 6D of the Market Rules and the ancillary rule modifications to Appendix 6D and 6J of the Market Rules so that every constraint violated by the Market Clearing Engine (MCE) will incur a penalty to the objective function of the linear program.
Currently, once a constraint is violated, other constraints associated with the same entity may be violated up to the same amount without incurring further penalty. This is because only the largest violation for each entity counts towards the violation penalty incurred in respect of the entity. The proposed change is to have all violations for each entity count towards the violation penalty incurred for the entity. This would ensure that constraints are only violated when necessary.

Testing

Testing on a prototype MCE with the formulation changes showed that problem cases would be resolved and “normal” cases would be unaffected.

Test results showed that the proposed modifications would address the problem in context (i.e. ‘free-riding’ violations by the MCE) but would leave the solutions for all other situations unaffected.

Implementation

EMC estimated that the whole implementation process would require approximately 6-7 weeks.

As EMC has already started on user acceptance testing, this change (if approved) can be fully implemented before EMC’s IT systems code freeze (due to a re-platform of servers) on 1 November 2006.

The cost of implementation will be covered by the MCE maintenance contract already catered for in EMC’s budget.

As this rule modification proposal would involve MCE formulation changes, it was referred to the Technical Working Group (TWG). At its 11th Meeting on 21 August 2006, the TWG considered and endorsed the rule modification proposal and ancillary rule modifications.

The Panel supported EMC’s recommendation and would make the necessary recommendation to the EMC Board for adoption.
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9.0 Close of Banking Business
(Paper No. EMC/RCP/28/2006/260)

EMC proposed a rule change under Section 1.1.25 of Chapter 8 of the Market Rules and Section 9.2 of the Market Operations Manual (Settlement: Chapter 7) to extend the Close of Banking Business (COB) under the Market Rules from 3.00pm to 5.00pm. This would be consistent with the instruction of the Monetary Authority of Singapore (MAS) to Singapore banks.

The extension would provide Market Participants with more time to make wholesale market payments and this would reduce the probability of technical default.

The Panel supported EMC’s recommendation and would make the necessary recommendation to the EMC Board for adoption.

10.0 Concept Paper 13 – Review of Prudential Requirements

The Panel was informed that the review of prudential requirements formed part of the RCP workplan for 2006.

During the RCP work plan prioritization exercise held in January 2006, a market participant (MP) had requested or such a review. The MP was concerned if EMC currently holds sufficient credit support to safeguard against default payment, in light of a proposal to change the bearer of default risk from non-defaulting MPs to net creditors only.

The Panel was also informed that the EMC Board had also raised a similar concern over the adequacy of the credit support currently held by EMC, particularly in guarding against sudden sustained price spikes.

Consequently, EMC engaged a consultant (Dr Ng Kah Wah, Director of Centre of Financial Engineering, NUS) to conduct the review.

Dr Ng has proposed a new methodology to calculate prudential requirements of a MP/MSSL using the ‘Generalised Extreme Value’ (GEV) model.
The Panel was informed that based on empirical analysis, the GEV distribution better reflects electricity price movements and hence, it is a more appropriate statistical model for analyzing price volatility compared to conventional normal distribution.

- Under the proposed methodology, the Credit risk exposure of a MP/MSSL comprises two components, A and B.
- Component A: covers for 30-day trading exposure assuming stable prices. This is given as:

  \[
  \text{Component A} = \text{CE} + (\text{ADE})^{*18}
  \]

ADE' is average daily exposure, which is based on the simple average of past 90 days’ trade value.

A comparison was made between Component A and the current methodology:

\[
\begin{align*}
\text{Component A} & = \text{CE} + (\text{ADE})^{*18} \\
\text{Current Methodology} & = \text{CE} + (\text{CE/12})^{*18}
\end{align*}
\]

The Panel was informed of the following similarity and difference:

- Similarity: Both have ‘CE’ and use past trade value to estimate 18 day unknown exposure;
- Difference: 18-day unknown exposure is determined using average of past 90 days’ trade (under component A), instead of average of past 12 days’ trade (under current methodology)

The reasons for using 90-day average for the ADE is to mute the effect of any outlier trade value which can over-inflate (or under-estimate) the credit risk exposure of a MP/MSSL.

Because Component A assumes relatively stable prices during the 18-day period, another component (Component B) is added to account for potential price volatility during the 18-day period (where the trade exposure of a MP/MSSL remains unknown to the EMC).

Component B is determined using the ‘Generalised Extreme Value’ (GEV) model, and aims to capture the effect of potential price volatility on a MP’s/MSSL’s credit risk exposure (through a price volatility factor, given as \([(18)^{i} \times \psi\])
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This factor only applies to the non-vested portion of a MP’s/MSSL’s trade (called “non-vested exposure” or “NVE”). Hence, the exposure arising from potential price volatility is given:

\[ \text{Component B} = (18)^\xi \times \psi \times (NVE) \]

Combining Component A and B together gives us the 30-day credit risk exposure of a MP/MSSL as:

\[ \text{CreditRiskExposure} = CE + 18(ADE) + [(18)^\xi \times \psi \times (NVE)] \]

The strengths of the proposed methodology include:
- it models tail-end losses (and hence, limits potential credit loss should a default occur);
- the collateral set better reflects the credit risk exposure of a MP/MSSL credit risk exposure (and it adheres to the ‘causer-pay’ principle where a party with higher risk would need to pledge a higher amount of collaterals); and
- the use of past 90days’ trade value for the ADE mutes the effect of any outlier trade amount which can over-inflate (or under-state) the credit risk exposure of a MP/MSSL.

The weaknesses include:
- it is a more complex methodology (compared to the current one);
- on average, higher amount of collaterals is required if MP/MSSL uses cash for the collaterals.

On balance, EMC still recommends using the proposed methodology.

This is because the proposed methodology is more robust since (i) it accounts for potential extreme price movements, (ii) the collaterals required is better aligned with the credit risk exposure of a MP/MSSL and (iii) it does not over-inflate (or under state) the estimated credit risk exposure of a MP/MSSL if there is an outlier trade amount.

However, implementing the proposed methodology will have major impact on the EMC, MPs and MSSL, entailing substantial rule and system changes. Hence, EMC has recommended that the proposed methodology and the prototype calculator be further tested in parallel with the current production system for six months. EMC will then report on the test results and make the final recommendations to the
Mr. Langdale suggested that when conducting the prudential trial, EMC should provide more insights into the frequency of margin calls and the maximum/minimum amount of collaterals required in comparing the current methodology against the proposed methodology.

Mr. Philip Tan raised the following points:

1. He believes the MP raised the need for a review because the credit support held by that may not sufficient to safeguard against default risk. Based on that, EMC should determine whether the prudential requirement which is based on a 30-day period (which includes the 20-day settlement cycle and 10-day suspension process) is appropriate or not.

He felt that the 30-day period may not be sufficient because the transfer of customers to MSSL after a default may take a much longer time. Hence, EMC should examine if there is a need to increase this '30-day period' in view that MSSL may need a longer time to complete the customer transfer.

2. Margin call and the proposed methodology for determining credit risk exposure would need to be seen in totality, and not in isolation, when determining whether the proposed prudential system is better than the current one.

He felt that the current prudential system produces much more conservative results than the proposed system and this is due to the existing rules on margin call. In his view, the collaterals required under the current system is more likely to provide more safeguard against default compared to the proposed system.

3. In the review, EMC should also consider whether Corporate Guarantees should be allowed as collateral. Currently, the rules make no provision for the use of corporate guarantee as collaterals.

4. He noted that most jurisdictions determine the collaterals required based on the daily trade amount multiply by a certain number (presumably the number of days before settlement of a trade occurs). Such a methodology is adopted because it is simple --- all market players understand it and would be able to perform the calculation on their own.
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The proposed methodology is too complex, involving some complicated formulae. He is concerned about whether market players would be able to perform the calculation under the proposed methodology on their own.

Mr. Tan felt that it is not necessary to introduce such a complex methodology. He pointed out that based on the empirical test of the review the price volatility factor was 1.7. Perhaps, EMC could consider just adding this 1.7 to the 30-day period so that collateral that is based on a 31.7-day period would be required.

He requested for EMC to look into the issues raised, if possible prior to the commencement of the trial.

Mr. Langdale suggested that EMC proceed with the prudential trial and that the trial should be thorough. After the testing, EMC should report back with all the necessary information so that MPs can better understand what exactly would be the impact and changes involved under the proposed methodology.

Mr. Langdale further suggested that the calculator for the proposed methodology should be made available to all MPs so that they could perform their own calculations, if the proposed methodology is eventually adopted.

Mr. Tan asked about the cost to the market on the prudential trial which will run in parallel with the current production system. Mr. Paul Poh informed the Panel that there are no additional out-of-pocket expenses for the MPs as the expenses involved are within EMC’s approved budget.

The RCP supported that the prudential trial be carried out and the issues raised be examined.

The being no other matters, the meeting ended at 13.20pm with a vote of thanks to the Chair.

Dave E Carlson  
Chairman

Minutes taken by:  
Eunice Koh