



## Notice of market rule modification

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<b>Paper No.</b>	EMC/RCP/14/2004/231
<b>Rule reference:</b>	Wholesale Settlement Re-Run
<b>Proposer:</b>	Settlement Task Force, EMC Pte Ltd
<b>Date received by EMC:</b>	9 March 2004
<b>Category allocated:</b>	2
<b>Status:</b>	Approved by EMA
<b>Effective Date:</b>	1 April 2005
<b>Summary of proposed rules change:</b>	

This proposal is for EMC to implement an “Automated Partial Re-run with Nominated Days” regime to perform wholesale settlement re-runs that are necessitated by metering errors.

<b>Date considered by Panel:</b>	6 July 2004
<b>Date considered by EMC Board:</b>	29 July 2004
<b>Date considered by Energy Market Authority:</b>	27 August 2004
<b>Proposed Rule Modification:</b>	

Refer to attachment

**Reasons for rejection/Reasons for referral back to Panel (if applicable):**



PAPER NO. : **EMC/BD/04/2004/03(c)**

RCP PAPER NO. : **EMC/RCP/14/2004/231**

SUBJECT : **WHOLESALE SETTLEMENT RE-RUN**

FOR : **DECISION**

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DATE : **29 July 2004**

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### **Executive Summary**

The proposed rule changes aim to solve the problems related to settlement re-runs that are necessitated by metering errors. In its report to the EMA, the Task Force on Settlement Re-runs tasked EMC to recommend a solution to the Rules Change Panel. EMC's proposed solution is software enhancement to the current wholesale settlement system to achieve "Automated Partial Re-run with Nominated Days". This solution is both pragmatic and sustainable. There has been a majority vote by the RCP to support this rule change proposal. Hence, we recommend that the EMC Board adopt this proposal.

## 1. Introduction

This rule change proposal recommends adopting a system to perform wholesale settlement re-runs due to metering errors. It is a follow-up to the recommendation of the Task Force on Settlement Re-runs that EMC proposes a settlement re-run solution to the Rules Change Panel.

## 2. Background

### 2.1 The problem with metering errors and full wholesale settlement re-runs

Metering errors necessitates settlement adjustments in the wholesale electricity market. Currently, when a metering error is reported by MSSL to EMC, EMC performs a full wholesale settlement re-run that re-computes quantities and some charges and rates of administration fees (i.e. HEUC, AFP, MEUC and rates for PSO and EMC fees) for all settlement accounts (full re-run). The problem with this approach is that one error affects a large number of customers, i.e. retailers have to re-compute the invoices of their consumers if their contractual agreements with customers so require. In other words, with every single detected error, parties not related to an error are unnecessarily affected. This is highly inefficient and costly to retailers and ultimately consumers.

Moreover, the current wholesale settlement system was not designed to perform re-runs online. Full re-runs are performed off-line on an ad hoc basis, i.e. as and when errors are reported to EMC. The process is a manual intervention with its associated risks. There is no audit trail because each re-run is carried out offline and not recorded in the system production database. Also, every re-run requires a re-run environment to be set up because there is no designated resource for this function. Besides incurring cost to set up this environment, a full re-run potentially competes with the MCE for resources. In short, it is both undesirable and operationally unsustainable.

### 2.2 Formation of Task Force on Settlement Re-runs

In view of these inefficiencies and risks, the EMA requested EMC (on 18 Jun 2003) to form and chair a task force to resolve problems associated with settlement re-runs. The Task Force was formed and convened for the first time on 30 June 2003. The appointed members represent retail licensees, generator licensees, the MSSL, the EMC and the EMA (observer).

The Task Force considered a range of issues relating to settlement re-runs. For details, please refer to the attached **Annex 2** - Task Force Report submitted to EMA.

### 2.4 Task Force Deliberations

The Task Force began by considering an “automated partial re-run” methodology for the wholesale market. Any settlement adjustment amount is determined by multiplying the meter error (i.e. energy only) by the original prices and rates used in the Final Settlement Statement (FSS). This means that the rates of administration fees will not be re-calculated. In addition, all meter errors relating to a trading day discovered by a specific day, referred to as “nominated day”, will be accumulated in computing the settlement adjustment for energy related payments only. This “nominated day” concept makes settlement re-runs a regular feature of the settlement cycle. We will refer to this as Option A in the analysis portion of this paper.

Subsequently, the Task Force felt that the cost of implementing Option A was too high. The expenditure was also not warranted as it expects the occurrence of meter errors to be insignificant going forward. So at the 8<sup>th</sup> meeting, it decided to consider an alternative option to have full settlement re-runs for metering errors discovered within the first 2 months of a trading day. We will refer to this as Option B in the analysis portion of this paper.

At the 9<sup>th</sup> and final meeting, the work of the Task Force was concluded. In this meeting, EMC expressed concern about the sustainability of Option B. Noting these concerns, the Task Force's final recommendation was for EMC to propose a solution for Wholesale Settlement Re-runs to the Rules Change Panel. In its proposal, EMC should consider the preference of the Task Force for minimal impact on invoices, materiality of meter errors and costs. It should also consider retailers' concern about their lack of recourse to the wholesale market as a result of customer claims after wholesale settlement closure.

### **3. Economic Analysis**

With the purpose of recommending an appropriate option to the RCP, this section describes Options A and B in detail and analyzes their relative strengths and weaknesses. These 2 options are the same as those considered by the Task Force except for a minor difference to Option A which is pointed out below.

#### **3.1 Option A: Automated Partial Re-run with Nominated Days**

##### **3.1.1 Accumulation of metering errors using concept of Nominated Days**

Essentially, this concept means that metering errors pertaining to a trading day and discovered up to a nominated day (in the future) is accumulated. Then, one settlement re-run is performed for that trading day's accumulated errors for the nominated day. There are two nominated days proposed, i.e. T+45 and T+250 (approximately 1 year) business days respectively.

To illustrate, for a trading day T, all metering errors (i.e. variance from the meter data used in the FSS) detected up to the first nominated day will be accumulated. Similarly, for the second nominated day, the settlement re-run performed will use the accumulated errors detected up to the second nominated day.

It was recommended that the first nominated day be **T+45** business days to provide for the following:

- 22 business days (monthly billing period)
- 13 business days (maximum period of time for MSSL to issue invoice to contestable customers it services)
- 10 business days (for customers to report error and MSSL to check and submit errors to retailers/EMC).

The second nominated day will fall on <sup>1</sup>T+250 business days and will also be the closure of wholesale settlement. In other known <sup>2</sup>jurisdictions, wholesale settlement typically closes between 6 months to 2 years of the trading date. This is recommended for the following reasons:

- Closure of wholesale settlement should not be too long to cater to entry/exit of market participants/consumers.
- Most metering errors would have been discovered within a year.
- Closer alignment with practice in other <sup>3</sup>jurisdictions

At this point, it is worthwhile to note that nominated days are reference dates for the detection of metering errors and not the actual days when the metering errors are to be reported or when settlement re-runs are to be performed.

### 3.1.2 Partial Re-run

#### The Full Re-run (Current Practice)

Currently in producing the FSS, regulation charges and the rates of HEUC, EMC fees and PSO fees depend on the quantity of energy injected and withdrawn (which are determined from meter data). HEUC is a balancing item that ensures that total payments from load equal payments to gencos. Therefore, when there are meter errors, a full re-run is carried out to ensure that payment by load equals payment to gencos. This, however, results in a change in regulation charges and the rates of HEUC, PSO and EMC fees and the problem described in section 2.1.

The **partial re-run** method (as opposed to a full re-run) works as follows:

- a) Only energy adjustment will be made to those MPs affected by metering errors.
- b) No adjustments to any other settlement item (i.e. <sup>4</sup>vesting contract, reserve, regulation and transmission rights) would be required.
- c) The prices and rates of administration fees used in the FSS of the trading day to which the meter errors relate will be used for the settlement re-run.
- d) For load, metering errors relating to a dispatch period of a trading day accumulated using the concept of nominated days will be multiplied by the WEP (sum of USEP, AFP, HEUC, MEUC, PSO and EMC Fees).
- e) For each market network node associated with a genco, metering errors relating to a dispatch period of a trading day accumulated using the concept of nominated days will be multiplied by the MEP (of the gencos' respective generators) less the applicable PSO and EMC fees.

<sup>1</sup> The second nominated day considered by the Task Force was T+120 business days

<sup>2</sup> In PJM (US), wholesale settlement closes 6 months after trade date. In NEMMCO (Australia), wholesale settlement closes after 6 months with an allowance of 20 business days for dispute. In New Zealand, the wash-up period is 2 years.

<sup>3</sup> For instance, NEMMCO (weekly settlement) routinely perform re-runs on the 20<sup>th</sup> and 30<sup>th</sup> week following a trading week.

<sup>4</sup> Refers only to wholesale settlement of vesting contracts between MSSL and Gencos.

- f) The net adjustment amount for each affected settlement account for each settlement interval will be calculated by aggregating the amounts calculated in (d) and (e) above (if any) in respect of that settlement account for that settlement interval. The net adjustment amount is posted to the next available Preliminary Settlement Statement (PSS) following the completion of settlement re-run for the relevant nominated day.
- g) Because no rate of administration fee is recomputed, the total adjustment payment by load may not equal the total adjustment payment to gencos. A Financial Imbalance can be created for a trading day when the counterparty to a metering error relating to any one party cannot be identified. (See **Annex 3** for illustration). When this happens, the sum of adjustments for metering errors across all affected settlement accounts in a settlement interval will be non-zero. This imbalance shall be collected from or paid to all load through the HEUC.
- h) No interest would be paid or charged to any adjustment amount described above.

### 3.1.3 Task Force's Considerations

The Task Force noted that the partial adjustment method had a distinct advantage of using the same rates of administration fees that were calculated in the FSS of the relevant trading day. Hence, retailers need not wait for the adjustments arising from a nominated day to be made in the wholesale market before they can adjust their customers' invoices. Upon receiving any corrected meter data from MSSL, the retailers can make adjustments based on the metering difference right away.

However, the Task Force also had two reservations. Firstly, it was concerned about the high cost of implementing such a system. It felt that metering errors are not likely to occur often in the immediate future, hence not justifying the expenditure. Secondly, retailers were concerned that the proposed wholesale settlement closure left them exposed, without recourse, to claims from customers.

### 3.2 Option B: Minimize re-runs by restricting re-run after final settlement run

Concerned about the cost of implementing Option A and not expecting metering errors to be significant in the future, the Task Force considered Option B, which is described as follows:

Guidelines for treatment of metering errors discovered within 2 months of the trading date (Exclude errors submitted by MSSL to EMC by 5.00 pm of D+9 business days, where the normal run for the final settlement would be used to take into account the metering errors.):

- 1) For metering errors where the counterparties can be identified, the parties are to bilaterally resolve the differences outside the market. This will minimize the number of off-line re-runs.
- 2) For errors where counterparties cannot be identified, full offline settlement re-runs will be performed only for those that meet a threshold value. This value should reflect the cost of re-runs and be incident-based (as opposed to period-based).
- 3) No re-run will be performed for errors arising from over or under-registration of non-contestable consumer meters below 66kv.
- 4) There will be no re-run of vesting contract settlement.
- 5) For full offline re-runs, the adjustment amount will be posted to MP's as a non-period charge line item in the next available preliminary statement.
- 6) Re-runs can only be carried out when system resources are available i.e. there would be delays in carrying out re-runs.

Guidelines for treatment of metering errors discovered after 2 months from the trading date:

- 7) For metering errors where the counterparties can be identified, the parties are to bilaterally resolve the differences outside the market.
- 8) For metering errors where counterparties cannot be identified, the amounts shall be uplifted from loads via MEUC only if they meet a threshold value.
- 9) Pursuant to (8), where an error is discovered such that a claimant has to be paid, EMC shall have 90 days to collect the amount from the market and pay the claimant.
- 10) Pursuant to (8), where an error is discovered such that a customer has to pay, the responsible retailer shall make reasonable endeavour to collect the owed sum from the customer and return it to load via MEUC.

For the purpose of calculating settlement adjustment arising from (8)-(10), the meter error quantity will be multiplied by the WEP, i.e. partial re-runs. No other adjustments will be made. The period that the load remains liable (entitled) for (to) such claims (refunds) should be in accordance with the Limitation Act.

### **3.2.1 Task Force's Considerations**

The Task Force noted that this option was akin to status quo. However, EMC was firstly concerned that it would not be a sustainable solution because performing full settlement re-runs competes for resources with the MCE. Secondly, this option entailed a fair amount of subjective judgement, chiefly on the materiality issue, that would lead to future disagreements between parties.

### **3.3 Comparison of Options A and B**

The following sub-sections describe how the two options compare under the following considerations:

- Minimal Impact on Invoices, no change in the rates of administration fees
- Materiality of Errors
- Cost of solution
- Wholesale Settlement Closure – retailers' concern about 6-year exposure to customer claims
- Sustainability

#### **3.3.1 Minimal Impact on Invoices**

The current method of full offline settlement re-run re-calculates all invoices, regardless of whether an invoice has an associated metering error. Hence, the main motivation behind the formation of the Task Force on Settlement Re-runs was to find a solution to this. Options A and B differ in fundamental ways and have different implications on invoices.

#### **Option A**

Option A was conceptualized to solve this problem directly with partial re-run. As described in Section 3.1, partial re-run entails no change to the rates of administration fees and hence there is no need to re-generate every invoice. Also, if all counterparties can be identified, only invoices with associated metering errors will contain settlement adjustment.

## **Option B**

Option B calls for bilateral settlement of all metering errors if all counterparties can be identified. Where counterparties cannot be fully identified, full offline settlement re-runs will be performed for errors discovered within 2 months of the trading date. When this happens, all invoices would be affected by recalculation of the rates of administration fees. All errors reported (without counterparties) after 2 months would be subject to partial re-run and uplifted through the MEUC.

### **3.3.2 Materiality of Errors**

Recognizing that performing settlement re-runs incurs cost, it is prudent to ensure that the cost of a re-run does not exceed the settlement value of the associated error.

## **Option A**

Option A entails an automatic partial re-run module that performs re-runs as a routine task after each nominated day, regardless of the extent of any error. This dispense with the need to establish any materiality value. This approach treats all errors, and hence all parties, equally.

## **Option B**

Option B sets out to establish materiality values for metering errors. While it sounds intuitive, this approach is dogged with practical difficulties. There are 5 operational issues:

### **1. How should an “event” be defined?**

The Task Force agreed that quantifying of metering error values should be event-based. That is, when establishing a value for a particular metering error to be compared against the threshold, that value should be an accumulated value that is attributable to an event that resulted in a metering error. Here, the exact definition of an “event” will be difficult to pin down. Should it be tied to a particular “cause” of a metering error or tagged to a particular meter or market participant? That aside, the duration of an “event” will pose one major problem. Suppose an “event” spanned across a long period of time and surpassed the “cut-off” period for wholesale settlement. In this situation, which constraint to apply will be controversial.

### **2. Recurring losses that are marginally below the threshold value**

Even if an “event” can be defined without controversy, there remains the potential issue of a MP having suffered repeated losses that are just marginally below the threshold amount. The cumulative effect of these losses can become very substantial, thereby causing aggrieved MPs to call for a review of the threshold value. The threshold value then becomes unsustainable, depending on how metering errors pan out.

### **3. Cost of maintaining metering data**

Storing 6 years worth of metering data will require a substantial database and querying capability. Also, EMC would need to be able to retrieve such data easily when there are metering errors. For metering errors that are scattered across different periods, EMC needs to be able to manage a large volume of disorderly data. Having these capabilities entails high costs.

#### 4. Who should be calculating the values of metering errors?

It has to be decided who should be the appropriate party to estimate the value of metering errors. Should it be the MSSL (who reads the meters), EMC (who is the independent market operator) or the MP (who is financially affected)? Suppose a decision can be made. The question then remains that since the difficult task of calculating the value of every metering error has to be done, why not make the settlement adjustment anyhow?

#### 5. What if there is a dispute?

The issue of disputes over the estimated value of metering error would also be problematic.

#### 3.3.3 Cost of Solution

Implementation cost of the solution is a big concern for the Task Force. From the wholesale market's perspective, it is also important that a cost-effective solution is found. Prior to the provision of implementation cost estimates by EMC, Task Force members were in favour of choosing Option A.

##### Option A

To be presented at RCP meeting by EMC and MSSL.

##### Option B

With Option B, minimal enhancement to the current settlement system is needed. However, internal costs to set up re-run environments would be incurred. There is also the risk that the production environment will lack a fall-back platform when re-runs are performed.

In preferring Option B, the Task Force worked on the expectation that the occurrence of metering errors going forward would not be significant. But as demonstrated by recent reports (between 24 Dec 03 and 06 Jan 2004) of metering errors for periods dating 1 Jul 2003 – 1 Jan 2004, 11 – 28 Dec 03 and 7 Nov – 24 Dec 03, that expectation may be unrealistic.

#### 3.3.4 Wholesale Settlement Closure

Wholesale settlement cannot be open indefinitely. A closure is required for finality. The decision between a short and long window period raises issues of equity. The following analysis compares the choice of wholesale settlement closure period in the two options.

##### Option A

With Option A, implementing a wholesale settlement cut-off of 250 business days exposes retailers to claims by consumers made after the cut-off. The Limitation Act (Cap. 163) generally provides for a window of 6 years for valid contractual claims to be made. Hence, any claim by consumers due to metering errors discovered between T+250 business days and T+6 years have to be met by a retailer. Given that retailers are not responsible for metering errors, it is inequitable for them to bear such claims. On the surface, it appears that retailers have no recourse for such claims. While it is true that they would not be able to recover these claims from the wholesale market, retailers may have legal recourse, i.e. against the parties responsible for the meter errors.

### **Option B**

With Option B, retailers are neutral to metering errors. With full re-runs in the first 2 months, there is no equity issue as adjustments are made to MPs (and consequently customers) pertaining to the trading day that the meter error arise. However, for any metering error discovered after 2 months any imbalance will be allocated to load through the MEUC. This means that any imbalance is always allocated to future consumers. If the customer base and consumption patterns do not change, customers who have been under-charged or over-charged because of a metering error in the past will be the same customers who will receive an adjustment in the future. This fulfills the matching principle and is fair. However, constant customer base and consumption patterns are highly unlikely especially if the wholesale market settlement remains open for 6 years. There is likely to be market entry/exits and changing load characteristics such that the matching principle no longer holds. Hence, customers who have been under-charged or over-charged in the past would not be the same ones that receive an adjustment in the future. This creates a mismatch and inequity.

As a good commercial practice, there is a need for retailers to manage their contractual obligations to customers by securing contractual protection from their service providers. This Option implies that future consumers have to underwrite meter errors indefinitely and is unjust. Additionally, there would be significant cost incurred to store settlement data and make them easily retrievable for 6 years.

### **3.3.5 Sustainability**

A key concern for the wholesale market is the sustainability of performing re-runs. Because of the financial adjustments involved, the re-run system has to be robust and reliable. Ideally, financial adjustments to settlement statements should not result in large swings in charges such as the HEUC.

### **Option A**

The systematic nature of nominated days ensures that metering errors are accumulated for a trading day and adjusted at one go. A dedicated environment is also set up for re-runs such that they do not compete for resources with the MCE.

### **Option B**

The full offline re-run feature of Option B retains the ad-hoc nature of settlement re-runs. Without a dedicated environment for re-runs, resources (eg. database) would have to be shared with the MCE. Hence, there is the risk of re-runs affecting the performance of the MCE, especially when multiple sets of re-runs (from weekends and holidays) are performed on a single day.

Essentially, corrected meter files are submitted to EMC on an ad-hoc basis. There is no order or systematic way to deal with re-runs of this type. One implication is that settlement adjustments for a particular trading day could potentially be performed repeatedly whenever errors pertaining to that trading day are reported. This adds to resource requirement.

**Table 1: Summary of Comparison**

Consideration	Option A	Option B	Preferred Option
<b>Minimal Impact on Invoices</b>	Partial re-run entails no change to rates of administration fees. Hence, unaffected parties' invoices are not affected.	Full re-run entails changes to the rates of administration fees and hence all invoices are affected.	<b>A</b>
<b>Materiality of errors</b>	With nominated days, all errors are accumulated and there is no need to set materiality thresholds. Re-runs are performed for every trading day.	Setting materiality threshold introduces subjectivity. Disagreements may arise from the definition of an "event" and the quantum of the materiality value. Eg. A retailer would feel aggrieved if it is affected by a succession of separate "events" that are below the material threshold.	<b>A</b>
<b>Cost of Solution</b>	To be presented at RCP Meeting.	No change to current settlement system. Minimal direct cost to the market for re-runs. Labor cost of manual re-runs is approximately \$3500 per re-run.	<b>B</b>
<b>Wholesale Settlement Closure (Cut-off)</b>	Cut-off of 250 business days gives finality to settlement in the wholesale market. Consistency with practice in other jurisdictions. There is potentially legal recourse for retailers' concern about their liability (6 years) to consumers under the Limitation Act.	Wholesale settlement closure follows the Limitation Act i.e. 6 years. Retailers, who are not responsible for metering errors, can recover costs from the wholesale market commensurate with their exposure to consumers.  Inequity of uplifting error from a different pool of consumers.	<b>A</b>
<b>Sustainability</b>	Re-runs based on nominated days will be orderly and neat. Errors are accumulated and run with efficiency. No competition for resources with MCE.	Full offline re-runs are done on an ad-hoc basis. Errors are not systematically accumulated, making re-runs haphazard. Competes for resources with MCE. Cost of storing data in an easily retrievable form for 6 years.	<b>A</b>

### 3.3.6 Recommendation based on Analysis

On balance, we recommend the adoption of **Option A: Automated Partial Re-run with Nominated Days** as the solution to wholesale settlement re-runs. Accordingly, the following amendments to the Market Rules are recommended:

Chapter	Section	Main Purpose For Change
7	2.1.1.3	To provide that MSSL submits metering-related information also for the purpose of settlement re-runs.
7	2.1.3	To provide that EMC can and shall also rely on certain data submitted by MSSL to perform settlement re-runs due to metering errors.
7	3.5.1	To enable the financial imbalance (which may arise from settlement re-runs due to metering errors) to be collected/distributed via HEUA.
7	5.4.2.4	To allow adjustments to be included as an item in the Preliminary Settlement Statement (PSS).
7	5.5.6.4.b and 5.5.6.4.c	To correct that relevant adjustments thereunder will be made to the PSS instead of the Final Settlement Statement (FSS).
7	5.6.2	To provide that the content of the FSS may also differ from the corresponding PSS due to adjustments arising from metering errors.
7	5.7.1.2	To provide that any adjustments pertaining to an issued FSS will appear in the applicable PSS.
7	5.8.6	New section to allow the EMC to issue an invoice for adjustment to <sup>5</sup> resigned/terminated MPs without issuing any settlement statements.
7	5.9.1A	New section to clarify that a MP's payment liability is incurred not when it is invoiced, but at the time of an act or event that gave rise to the liability.
7	5.9.6	New section to state that a resigned/terminated MP who is issued an invoice by EMC is required to pay within 20 business days of the invoice date.
7	Appendix 7B	New appendix that describes the procedure for settlement adjustments to be carried out for metering errors.

<sup>5</sup> A resigned MP is one whose registration has expired under section 4.1.4 of Chapter 2.

Additionally, we also recommend the following related amendments to the market rules to effect the proposed re-run regime:

Chapter	Section	Main Purpose For Change
2	4.1.5	To add that a resigned MP remains liable for adjustments due to metering errors for trading days on which it was still a MP.
2	4.1.6	To add that the EMC must return credit support if a resigned/terminated MP has, among other things, no future or actual liabilities in respect of adjustments due to metering errors.
2	7.7.7	New section to state that EMC shall retain all rights to the credit support previously provided by a resigned/terminated MP. Any non-payment by the resigned/terminated MP of any invoiced amount may be treated as an event of default.
2	7.8.1	Minor correction of drafting error.
2	7.8.2	New section to provide that EMC can retain all or part of the credit support provided by a resigned/terminated MP to secure liabilities of the resigned/terminated MP. In deciding on the amount to be retained in respect of any potential liability due to metering errors, EMC would consider the previous transactions of the MP on the wholesale electricity markets and the previous instances of metering errors.
3	7.4.13	To add that a terminated MP remains liable for adjustments due to metering errors for trading days on which it was still a MP.
3	7.4.14	To state that EMC, and not the MSCP, is the appropriate party to determine if a terminated MP has any remaining financial obligation or liability under the Market Rules.
8		To define new terms introduced for the new re-run regime.

#### 4. Assessment against Section 46(4) of the Electricity Act

This rules modification proposal is consistent with the functions and duties of EMA. It enables EMA: -

- (g) to promote and safeguard competition and fair and efficient market conduct.

The proposal does not discriminate in favour of or against a market participant or a class of market participants.

We note that some of your reasons for not supporting modified option A are as follows:

A simple uplift could be more cost-effective  
 Bilateral settlement (with MSSSL) can be performed for errors involving customers below 66kv  
 (as has been done)

#### 5. Conclusion

**Option A: Automated Partial Re-run with Nominated Days** is the preferred option to address the issues related to wholesale settlement re-runs necessitated by metering errors. It is able to achieve the following

- 1 Minimal impact on invoices

- 2 Avoid complicated issues with setting materiality values
- 3 Sustainability through a routine and systematic re-run using a dedicated re-run environment

Although Option B is less costly, it does not provide solutions to the issues identified by the Task Force and entails many practical difficulties.

## 6. Impact on market systems

The modification require software enhancement on EMC's settlement system. The estimated one-time implementation cost is \$480,000.

No impact is expected on other market systems.

## 7. Implementation process

EMC IT System Development:	<u>6 months</u>
User Acceptance Test:	<u>1 month</u>
Market Trials:	<u>0.5 month</u>

Total time required is approximately 7.5 months from project commissioning.

## 8. Consultation

We have published this conceptual proposal on the EMC website for comments. Comments received are as follows:

### MSSL

#### **Section 3.1.2 (b):**

No adjustments to the settlement item of vesting contract should refer only to the wholesale settlement between MSSL and Gencos for vesting contracts.

For changes in consumption figures due to metering errors, SP Services will need to carry out vesting adjustments for the individual consumers or retailers affected.

#### **EMC's response:**

[Comment noted. EMC has clarified this point in Section 3.1.2 of the rule change paper.](#)

#### **Section 3.2 (1) & (7):**

In our view, even if the parties are to bilaterally resolve the differences outside the market, the re-settlements still need to go through EMC which is a neutral party, i.e. EMC should assist in calculating the difference and invoice the affected parties. Clear working procedures have to be defined.

#### **EMC's response:**

[This issue is noted. It would have to be looked into if Option B is chosen.](#)

#### **Section 3.2 (10):**

What if the consumer refuses to pay?

**EMC's response:**

Please refer to section 4.3 of the Task Force report to the EMA. Our view is that the relevant supplier to the consumer should be liable. In the context of the wholesale market, if net payment is due to a MP, the MP will be paid. The reverse should also be true. The liability of an MP to the wholesale market should not be contingent on whether its customer can pay it.

**Section 3.3.4:**

We do not think that it is appropriate to state the following under the para on Option A:

“Given that the retailers are not responsible for metering errors, it is inequitable for them to bear such claims. On the surface, it appears that retailers.....may have legal recourse, i.e. against the parties responsible for the meter errors. “

For any metering errors discovered after 1 year, the party adversely affected should absorb the risk as is in the case in electricity markets in other jurisdictions.

**EMC's response:**

Retailers' concerns about not being responsible for metering errors and having no recourse to the wholesale market are a fact and have been discussed by the Task Force. We are also stating a fact that legal recourse is possible. As for making the affected party absorb the cost of all errors discovered after 1 year, we have obtained an independent legal opinion. We were advised that this can only be effected by the EMA. It cannot be effected in the market rules.

**Table 1:**

Materiality of Error

- We do not think it is difficult to determine a materiality threshold.

Wholesale Settlement Closure

- Please see the comments for Page 7, Section 3.3.4 above.

**EMC's response:**

Comment noted. Our concern is not the determination of the value but whether it is sustainable. We have identified substantial operational difficulties in implementing a materiality threshold and they are elaborated in Section 3.3.2 of the rule change paper.

**Section 6:**

Our preliminary study shows that the MSSL's IT systems would require very significant modifications. The costs incurred by MSSL may be several times more than the costs incurred by EMC for the proposed partial rerun.

**EMC's response:**

Comment noted. The revised option A proposed in this paper does not require any change to MSSL's IT systems.

**Annex 1: Section 7.8.2 of Chapter 2 and Section 7.4.14 of Chapter 3**

It is necessary to define clearly how to determine the appropriate amount of credit support to be retained by the EMC. In addition, clear timeline should be given about when the retained credit support should be reviewed and returned to the MPs.

**EMC's response:**

The longer term goal for the rulebook is for it to be drafted more in terms of principles to be applied and avoid describing detailed procedures and processes. This is so the reader can easily appreciate the spirit of the rules. In line with this, Section 7.8.2 of Chapter 2 describes

the factors that EMC will have to take into account in determining the amount of credit support to be retained. With regard to the timeline, we feel that the requirement (under the Electricity License) for EMC to act reasonably would suffice. In cases where an MP feels that EMC has not acted reasonably, it can raise a dispute under the market rules.

**Annex 1: Section 2.1.1.3 of Chapter 7**

EMA should be informed to note that the metering code, mss code may need to be modified to cater for the proposed rule change request.

**EMC's response:**

The EMA will be notified if the RCP accepts the proposal.

**Annex 1: Section 5.4.2 of Chapter 7**

Pls confirm whether the adjustments reflected in the preliminary statement shows the trading date that resulted in this adjustment.”

**EMC's response:**

This issue (which is not a rule issue) will be clarified when EMC presents the proposed wholesale settlement re-run module at the RCP meeting.

**9. Legal Sign-off**

Text of rule modification has been vetted by EMC's external legal counsel whose opinion is that the modification reflects the intent of the rule modification as expressed in the analysis section of this paper.

**10. Vote by the Rules Change Panel**

This proposal was first considered by the RCP on 11 May 2004. In its first form, Option A required modifications to the MSSL's systems. MSSL reported at the meeting that the changes could cost approximately \$4 million.

The panel then requested EMC to investigate if Option A could be modified such that no change to MSSL's system would be required. It also requested EMC to consider the option of not providing for any settlement re-run at all.

Accordingly, EMC modified Option A (as described in this paper). The modifications were mainly intended to set up the EMC system to manage ad-hoc metering submissions from the MSSL. They removed the need for the MSSL to accumulate metering errors for submission on nominated days, thereby not necessitating the \$4 million expenditure.

On 25 May 2004, EMC completed revising Option A and an analysis on the option of not having wholesale settlement re-runs. Panel members were requested to vote on whether to adopt Option A. The result of the voting is as follows:

In favour of Option A (6 votes)	In favour of no re-run or further study (3 votes)	Abstained (1)
1. Mr Kok Shook Kwong	1. Mr Eu Pui Sun	1. Dr Daniel Cheng
2. Mr Ben Lau	2. Mr Tan Boon Leng	
3. Mr Robin Langdale	3. Mr Francis Gomez	
4. Mr Lee Sin Chong		
5. Mr T P Manohar		
6. Mr Yip Pak Ling		

### 10.1 Response to Disagreeing Panel Members

Panel members who voted against Option A felt that it would be more cost-effective to implement a simple uplift mechanism. This entails estimating the adjustment value of metering errors. Thereafter, adjustment values that are deemed “material” will be uplifted from the market. Another suggestion was for affected market participants to settle bilaterally any adjustment due to metering errors. This would not necessitate a wholesale settlement re-run.

EMC’s views on these views are as follows:

#### 10.1.1 Simple Uplift

While the process of implementing an uplift is simple, the method of calculating the uplift amount is not straightforward. EMC cannot determine such values on an ad-hoc/manual basis. A system is required to perform the calculations. Also, implementing a “materiality” threshold for metering errors is impractical as discussed extensively in section 3.3.2 of this paper. Finally, any uplift from the market is paid by load and must be properly documented and easily auditable. Hence, considerable costs would have to be incurred for an imperfect solution for metering errors.

#### 10.1.2 Bilateral Settlement

Bilateral settlements are out of the market. Such arrangements are not governed by any rule so market participants are not obliged to settle with one another. Current MPs may honor the process but future MPs may not. Furthermore, bilateral settlement adjustment for errors where counter-parties cannot be identified (eg. genco meter error, customers above 66 KV) would not be possible.

## 11. Recommendation

By a majority vote, the RCP recommends that the EMC Board:

- a. **adopt** EMC’s proposal of **Option A: Automated Partial Re-run with Nominated Days** as a solution to settlement re-runs for metering errors. The proposed rules to effect this are described in the text modifications in **Annex 1**;

- b. recommend that the EMA **approve** the proposed modifications; and
- c. recommend that the proposed modification come into force approximately 7.5 months after the date on which the approval of the Authority is published by the EMC.

**Annex 1: Proposed Modifications**

Existing Rules (Release 01 Jan 2004)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
<b>Chapter 2</b>	<b>Chapter 2</b>
<p>4.1.5 A person whose registration as a <i>market participant</i> expires pursuant to section 4.1.4 shall remain subject to and liable for all of its obligations and liabilities as a <i>market participant</i>, including a liability under section 9, which were incurred or arose under the <i>market rules</i>, a <i>market manual</i> or the <i>system operation manual</i> prior to or on the <i>trading day</i> on which such registration so expires regardless of the date on which any claim relating thereto may be made, subject only to any applicable provisions of the <u>Limitation Act</u> (Cap. 163).</p>	<p>4.1.5 A person whose registration as a <i>market participant</i> expires pursuant to section 4.1.4 shall remain subject to and liable for all of its obligations and liabilities as a <i>market participant</i>, including a liability under section 9 <u>of this Chapter or a liability in respect of adjustments arising from metering errors under Chapter 7</u>, which were incurred or arose under the <i>market rules</i>, a <i>market manual</i> or the <i>system operation manual</i> prior to or on the <i>trading day</i> on which such registration so expires regardless of the date on which any claim relating thereto may be made, subject only to any applicable provisions of the <u>Limitation Act</u> (Cap. 163).</p>
<p>4.1.6 Once the <i>EMC</i> is satisfied that a person whose registration as a <i>market participant</i> has expired pursuant to section 4.1.4 has no remaining financial obligations or liabilities under the <i>market rules</i>, including a liability under section 9, the <i>EMC</i> shall return to the person all <i>credit support</i> held by the <i>EMC</i> in respect of such person.</p>	<p>4.1.6 Once the <i>EMC</i> is satisfied that a person whose registration as a <i>market participant</i> has expired pursuant to section 4.1.4 has no remaining financial obligations or liabilities under the <i>market rules</i>, including a liability under section 9 <u>of this Chapter or an actual, contingent or prospective liability in respect of adjustments arising from metering errors under Chapter 7</u>, the <i>EMC</i> shall return to the person all <i>credit support</i> held by the <i>EMC</i> in respect of such person.</p>
	<p>New Section 7.7.7</p> <p><u>7.7.7</u> For the avoidance of doubt, the <i>EMC</i> shall be entitled to all rights, in respect of any and all <i>credit support</i> previously provided by a person, whose registration as a <i>market participant</i> has expired pursuant to</p>

Existing Rules (Release 01 Jan 2004)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
	<p><u>section 4.1.4 or who is a <i>terminated market participant</i>, and retained by the <i>EMC</i> in accordance with the <i>market rules</i> after the expiration or termination of such person's registration as a <i>market participant</i>. In this regard, a non-payment by such person of any sums due and payable by it under section 9 of this Chapter or under section 5.8.6 of Chapter 7 shall for the purposes of the <i>market rules</i> be deemed to be an <i>event of default</i> by or of that person as a <i>market participant</i> notwithstanding the expiration or termination of its registration as a <i>market participant</i>.</u></p>
<p>7.8.1 Subject to section 4.1.6, where a <i>market participant's credit support value</i> has been reduced pursuant to section 7.3.3 and the <i>EMC</i> is therefore holding <i>credit support</i> that is in excess of that <i>market participant's credit support value</i>, the <i>EMC</i> shall, provided that the <i>market participant</i> is not then in default of its obligations or liabilities under these <i>market rules</i>:</p> <p>7.8.1.1 where the <i>existing credit support</i> is in a form described in sections and 7.6.2.3 and 7.6.2.4, return to the <i>market participant</i>, within two business days a portion of the cash deposit or Treasury Bills equal to the reduction in the <i>market participant's credit support value</i>; and</p> <p>7.8.1.2 in all other cases, return to the <i>market participant</i> the <i>existing credit support</i> as soon as possible following receipt by the <i>EMC</i> of the replacement credit support that complies with section 7.6.2.</p>	<p>7.8.1 <del>Subject to section 4.1.6, where</del><u>Where</u> a <i>market participant's credit support value</i> has been reduced pursuant to section 7.3.3 and the <i>EMC</i> is <del>therefore</del> holding <i>credit support</i> that is in excess of that <i>market participant's credit support value</i>, the <i>EMC</i> shall, provided that the <i>market participant</i> is not then in default of its obligations or liabilities under these <i>market rules</i>:</p> <p>7.8.1.1 where the <i>existing credit support</i> is in a form described in sections <del>and</del><u>—</u>7.6.2.3 and 7.6.2.4, return to the <i>market participant</i>, within two business days a portion of the cash deposit or Treasury Bills equal to the reduction in the <i>market participant's credit support value</i>; and</p> <p>7.8.1.2 in all other cases, return to the <i>market participant</i> the <i>existing credit support</i> as soon as possible following receipt by the <i>EMC</i> of the replacement <u><i>credit support</i></u> that complies with section 7.6.2.</p>

Existing Rules (Release 01 Jan 2004)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
	<p>New Section 7.8.2</p> <p><u>7.8.2</u> Subject to section 4.1.6 of this Chapter and section 7.4.14 of Chapter 3 as applicable, the EMC shall be entitled to retain the whole or part of the <i>credit support</i> previously provided by a person, whose registration as a <i>market participant</i> has expired pursuant to section 4.1.4 or who is a <i>terminated market participant</i>, to such extent as the EMC reasonably determines to be necessary to secure all financial obligations and liabilities of such person under the <i>market rules</i>, including a liability under section 9 of this Chapter or an actual, contingent or prospective liability under section 5.8.6 of Chapter 7. In determining an appropriate amount of <i>credit support</i> to be retained by the EMC in respect of any actual, contingent or prospective liability of that person under section 5.8.6 of Chapter 7, the EMC shall take into account, among other things, the previous transactions of that person as a <i>market participant</i> on the <i>wholesale electricity markets</i> and previous instances of <i>metering errors</i> known to the EMC.</p>
Chapter 3	Chapter 3
<p>7.4.13 A <i>terminated market participant</i> shall remain subject to and liable for all of its obligations and liabilities as a <i>market participant</i>, including a liability under section 9 of Chapter 2, which were incurred or arose under the <i>market rules</i>, a <i>market manual</i> or the <i>system operation manual</i> prior to the date on which it ceases to be a <i>market participant</i> regardless of the date on which any claim relating thereto may be made, subject only to any applicable provisions of the <u>Limitation Act</u></p>	<p>7.4.13 A <i>terminated market participant</i> shall remain subject to and liable for all of its obligations and liabilities as a <i>market participant</i>, including a liability under section 9 of Chapter 2 <u>or a liability in respect of adjustments arising from metering errors under Chapter 7</u>, which were incurred or arose under the <i>market rules</i>, a <i>market manual</i> or the <i>system operation manual</i> prior to the date on which it ceases to be a <i>market participant</i> regardless of the date on which any claim relating</p>

Existing Rules (Release 01 Jan 2004)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
(Cap. 163).	thereto may be made, subject only to any applicable provisions of the <u>Limitation Act</u> (Cap. 163).
7.4.14 Once the <i>market surveillance and compliance panel</i> is satisfied that a <i>terminated market participant</i> has no remaining financial obligations or liabilities under the <i>market rules</i> , including a liability under section 9 of Chapter 2, the <i>market surveillance and compliance panel</i> shall instruct the <i>EMC</i> to return to the person all remaining <i>credit support</i> , if any, held by the <i>EMC</i> in respect of such person.	7.4.14 Once the <del>market surveillance and compliance panel</del> <u>EMC</u> is satisfied that a <i>terminated market participant</i> has no remaining financial obligations or liabilities under the <i>market rules</i> , including a liability under section 9 of Chapter 2 <u>or an actual, contingent or prospective liability in respect of adjustments arising from metering errors under Chapter 7</u> , the <del>market surveillance and compliance panel</del> shall instruct <u>the EMC to</u> <del>shall</del> return to the person all remaining <i>credit support</i> , if any, held by the <i>EMC</i> in respect of such person.
<b>Chapter 7</b>	<b>Chapter 7</b>
<p><b>2.1 <u>RESPONSIBILITIES</u></b></p> <p>2.1.1 It shall be the responsibility of a <i>market support services licensee</i> to:</p> <p>...</p> <p>2.1.1.3 provide to the <i>EMC</i> such other metering-related information to the extent required by and in accordance with the <i>metering code</i> and any other applicable <i>code of practice</i>;</p> <p>2.1.3 The <i>EMC</i> shall be entitled to and shall rely on any metering data or corrected metering data provided to it by a <i>market support services licensee</i> for determining <i>settlement amounts</i> in accordance with this Chapter and, notwithstanding section 13 of Chapter 1: ...</p>	<p><b>2.1 <u>RESPONSIBILITIES</u></b></p> <p>2.1.1 It shall be the responsibility of a <i>market support services licensee</i> to:</p> <p>...</p> <p>2.1.1.3 provide to the <i>EMC</i> such other metering-related information to the extent required by and in accordance with <u>this Chapter and Appendix 7B</u>, the <i>metering code</i> and any other applicable <i>code of practice</i>;</p> <p>2.1.3 The <i>EMC</i> shall be entitled to and shall rely on any <i>metering data</i> or corrected <i>metering data</i> provided to it by a <i>market support services licensee</i> <u>in accordance with this Chapter and Appendix 7B</u> for determining <i>settlement amounts</i> in accordance with this Chapter and,</p>

Existing Rules (Release 01 Jan 2004)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
	notwithstanding section 13 of Chapter 1: ...
<p><b>3.5 <u>SETTLEMENT INTERVAL ENERGY UPLIFT CHARGES</u></b></p> <p>3.5.1 The <i>EMC</i> shall determine the <i>settlement interval energy</i> uplift amount (HEUA) for each <i>settlement interval</i> in accordance with the following formula:</p> $HEUA_h = \sum_a (NESC_h^a + NRSC_h^a + NTSC_h^a + NFSC_h^a)$ <p>where:</p> <p>h = a <i>settlement interval</i></p> <p><math>\Sigma_a</math> = sum over all <i>settlement accounts a</i></p>	<p><b>3.5 <u>SETTLEMENT INTERVAL ENERGY UPLIFT CHARGES</u></b></p> <p>3.5.1 The <i>EMC</i> shall determine the <i>settlement interval energy</i> uplift amount (HEUA) for each <i>settlement interval</i> in accordance with the following formula:</p> $HEUA_h = \sum_a (NESC_h^a + NRSC_h^a + NTSC_h^a + NFSC_h^a + \underline{NMEA_h^a})$ <p>where:</p> <p><u>a = settlement account a</u></p> <p>h = a <i>settlement interval</i></p> <p><math>\Sigma_a</math> = sum over all <i>settlement accounts a</i></p> <p><u><math>NMEA_h^a</math> = net metering error adjustment for settlement account a computed in accordance with Appendix 7B.</u></p>
<p><b>5.4 <u>PRELIMINARY STATEMENT COVERAGE</u></b></p> <p>5.4.2 <i>Preliminary settlement statements</i> related to each <i>market participant</i> for the <i>real-time markets</i> shall include, in electronic format, for the relevant <i>trading day</i>:</p> <p>...</p> <p>5.4.2.4 [Deleted and intentionally left blank]</p>	<p><b>5.4 <u>PRELIMINARY <u>SETTLEMENT</u> STATEMENT COVERAGE</u></b></p> <p>5.4.2 <i>Preliminary settlement statements</i> related to each <i>market participant</i> for the <i>real-time markets</i> shall include, in electronic format, for the relevant <i>trading day</i>:</p> <p>...</p> <p>5.4.2.4 [<del>Deleted and intentionally left blank</del>] <u>the aggregate adjustment amounts payable or receivable pursuant to these market rules;</u></p>

Existing Rules (Release 01 Jan 2004)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
<p><b>5.5 <u>VALIDATION OF PRELIMINARY SETTLEMENT STATEMENT</u></b></p> <p>5.5.6 Following receipt of a <i>notice of disagreement</i> and after informing the <i>market participant</i> of its intended actions and providing the <i>market participant</i> an opportunity to respond, the <i>EMC</i> shall do one of the following:</p> <p>...</p> <p>5.5.6.4 if the <i>EMC</i> decides that additional time to complete its investigations on the accuracy of the <i>preliminary settlement statement</i> is required, it shall issue the corresponding <i>final settlement statement</i> without any adjustment or correction relating to the matters that are the subject of those investigations, and shall so advise the <i>market participant</i> by way of written notice within a reasonable time after issuing such <i>final settlement statement</i> and shall complete those investigations within 15 <i>business days</i> of the issuance of such <i>final settlement statement</i> and promptly thereafter:</p> <p>a. where the <i>EMC</i> concludes that no error has occurred in the <i>preliminary settlement statement</i>, issue a notice in writing to the <i>market participant</i> advising the <i>market participant</i> accordingly and stating that no further action shall be taken;</p>	<p><b>5.5 <u>VALIDATION OF PRELIMINARY SETTLEMENT STATEMENT</u></b></p> <p>5.5.6 Following receipt of a <i>notice of disagreement</i> and after informing the <i>market participant</i> of its intended actions and providing the <i>market participant</i> an opportunity to respond, the <i>EMC</i> shall do one of the following:</p> <p>...</p> <p>5.5.6.4 if the <i>EMC</i> decides that additional time to complete its investigations on the accuracy of the <i>preliminary settlement statement</i> is required, it shall issue the corresponding <i>final settlement statement</i> without any adjustment or correction relating to the matters that are the subject of those investigations, and shall so advise the <i>market participant</i> by way of written notice within a reasonable time after issuing such <i>final settlement statement</i> and shall complete those investigations within 15 <i>business days</i> of the issuance of such <i>final settlement statement</i> and promptly thereafter:</p> <p>a. where the <i>EMC</i> concludes that no error has occurred in the <i>preliminary settlement statement</i>, issue a notice in writing to the <i>market participant</i> advising the <i>market participant</i> accordingly and stating that no further action shall be taken;</p>

Existing Rules (Release 01 Jan 2004)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
<p>b. where the <i>EMC</i> fully concurs with the <i>market participant's</i> proposed adjustment or correction, issue a notice in writing to the <i>market participant</i> stating that it shall adjust the next available <i>final settlement statement</i> accordingly; or</p> <p>c. where the <i>EMC</i> partially concurs with the <i>market participant's</i> proposed adjustment or correction or concludes that some other adjustment is required, issue a notice in writing to the <i>market participant</i> so advising, stating the changes <i>EMC</i> proposes to make therefore and stating that the next available <i>final settlement statement</i> shall be adjusted accordingly.</p>	<p>b. where the <i>EMC</i> fully concurs with the <i>market participant's</i> proposed adjustment or correction, issue a notice in writing to the <i>market participant</i> stating that it shall adjust the next available <del><i>final</i></del> <u><i>preliminary settlement statement</i></u> accordingly; or</p> <p>c. where the <i>EMC</i> partially concurs with the <i>market participant's</i> proposed adjustment or correction or concludes that some other adjustment is required, issue a notice in writing to the <i>market participant</i> so advising, stating the changes <i>EMC</i> proposes to make therefore and stating that the next available <del><i>final</i></del> <u><i>preliminary settlement statement</i></u> shall be adjusted accordingly.</p>
<p>5.6.2 The <i>final settlement statement</i> shall be in the same form as the <i>preliminary settlement statement</i> and shall include all of the information provided in the <i>preliminary settlement statement</i>, as amended following the validation procedure set forth in section 5.5, where applicable.</p>	<p>5.6.2 The <i>final settlement statement</i> shall be in the same form as the <i>preliminary settlement statement</i> and shall include all of the information provided in the <i>preliminary settlement statement</i>, <u>except as amended following the validation procedure set forth in section 5.5, and/or as adjusted based on any corrected <i>metering data</i> received by the <i>EMC</i> pursuant to Appendix 7B</u>, where applicable.</p>
<p><b>5.7 <u>FINAL SETTLEMENT STATEMENT RECALCULATIONS</u></b></p> <p>5.7.1 The <i>EMC</i> shall not recalculate <i>final settlement statements</i>. Any adjustments required to reflect the resolution of a dispute commenced pursuant to section 5.6.6 shall appear as a separate line item in the applicable <i>preliminary settlement statements</i> issued on the <i>business day</i> immediately following the date of resolution of the dispute, and</p>	<p><b>5.7 <u>FINAL SETTLEMENT STATEMENT RECALCULATIONS</u></b></p> <p>5.7.1 The <i>EMC</i> shall not recalculate <i>final settlement statements</i>. <u>Except where section 5.8.6 applies,</u></p> <p><u>5.7.1.1</u> <del>Any</del> <u>any</u> adjustments required to reflect the resolution of a dispute commenced pursuant to section 5.6.6 shall appear as a</p>

Existing Rules (Release 01 Jan 2004)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
<p>shall be reflected on the corresponding applicable <i>final settlement statements</i> and <i>invoices</i>.</p>	<p>separate line item in the applicable <i>preliminary settlement statements</i> issued on the <i>business day</i> immediately following the date of resolution of the dispute, <del>and shall be reflected on the corresponding applicable <i>final settlement statements</i> and <i>invoices</i>; and</del></p> <p><u>5.7.1.2 any adjustments to be made pursuant to Appendix 7B in respect of a <i>trading day</i> for which a <i>final settlement statement</i> has already been issued shall appear as a separate line item in the applicable <i>preliminary settlement statements</i> in accordance with Appendix 7B.</u></p>
	<p>New Section 5.8.6</p> <p><u>5.8.6 Notwithstanding any provision in the <i>market rules</i>, the <i>EMC</i> may issue an <i>invoice</i> to:</u></p> <p><u>5.8.6.1 any person whose registration as a <i>market participant</i> has expired pursuant to section 4.1.4 of Chapter 2; or</u></p> <p><u>5.8.6.2 any person who is a <i>terminated market participant</i>,</u></p> <p><u>in respect of all adjustment amounts payable by or to such person pursuant to these <i>market rules</i> and the <i>EMC</i> shall not be required to issue a <i>preliminary settlement statement</i> or a <i>final settlement statement</i> in respect of any such adjustment amounts. For each such <i>invoice</i>, the <i>EMC</i> shall calculate a net <i>invoice</i> amount, being the aggregate of all amounts stated therein as payable by or to such person. Such net <i>invoice</i> amount shall be a positive or negative dollar amount for that</u></p>

Existing Rules (Release 01 Jan 2004)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
	<p><u>person and:</u></p> <p>a. <u>where such net <i>invoice</i> amount is negative, the absolute value of the net <i>invoice</i> amount shall be an amount payable by that person to the EMC; or</u></p> <p>b. <u>where such net <i>invoice</i> amount is positive, the absolute value of the net <i>invoice</i> amount shall be an amount receivable by that person from the EMC.</u></p>
	<p>New Section 5.9.1A</p> <p><u>5.9.1A For the avoidance of doubt, a <i>market participant's</i> payment liability under the <i>market rules</i> shall be deemed to have been incurred by the <i>market participant</i> at the time of the relevant act, omission or event in respect of which such payment liability accrues to the <i>market participant</i> under the <i>market rules</i>, subject only to the determination, at a later date in accordance with the <i>market rules</i>, of the quantum to be paid by that <i>market participant</i> therefor.</u></p>
	<p>New Section 5.9.6</p> <p><u>5.9.6 A person who is issued an <i>invoice</i> under section 5.8.6 shall, notwithstanding the expiration or termination of such person's registration as a <i>market participant</i>, pay to the EMC the net <i>invoice</i> amount payable by that person under such <i>invoice</i> within 20 <i>business days</i> of the date of such <i>invoice</i>. Where the net <i>invoice</i> amount under the <i>invoice</i> issued under section 5.8.6 is payable by the EMC to such person, the EMC shall pay to that person the net <i>invoice</i> amount</u></p>

Existing Rules (Release 01 Jan 2004)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
	<u>within 20 business days of the date of such invoice.</u>
Chapter 8	Chapter 8
	<p>New Sections</p> <p><u>1.1.38A</u> <del>credit support value</del> <u>in relation to a market participant means the value calculated in accordance with section 7.3.2 of Chapter 2;</u></p> <p><u>1.1.141A</u> <del>metering error</del> <u>means an error in the metering data or in the corrected metering data in respect of a given trading day provided by the market support services licensee to the EMC pursuant to section 2.1 of Chapter 7;</u></p>

**Chapter 7 (New Appendix)**

**APPENDIX 7B – PROCESS FOR SETTLEMENT ADJUSTMENTS FOR METERING ERRORS**

**B.1 PURPOSE**

B.1.1 This Appendix describes the procedure for settlement adjustments to be carried out for *metering errors*.

**B.2 DEFINITIONS**

B.2.1 In this Appendix:

B.2.1.1 “affected *settlement account*” refers to the *settlement account* affected by a *metering error* and in respect of which corrected *metering data* has been provided by the *market support services licensee* to the *EMC* in accordance with Chapter 7 and this Appendix.

B.2.1.2 “settlement adjustment” means the computation by the *EMC* of adjustments necessitated by and relating to *metering errors* in accordance with this Appendix.

B.2.1.3 “T” refers to a given *trading day*.

B.2.1.4 “first nominated day” refers to the 45<sup>th</sup> *business day* after a given *trading day*, i.e. T+45.

B.2.1.5 “second nominated day” refers to the 250<sup>st</sup> *business day* after a given *trading day*, i.e. T+250.

B.2.1.6 “T+5 submission” means the submission of *metering data* by the *market support services licensee* to the *EMC* on or before 5pm on T+5.

B.2.1.7 “T+9 submission” means the submission of *metering data* and/or corrected *metering data* by the *market support services licensee* to the *EMC* in respect of *settlement accounts* affected by *metering errors* discovered on or before T+9.

B.2.1.8 “first nominated day submission” means the submission of *metering data* and/or corrected *metering data* by the *market support services licensee* to the *EMC* within the relevant submission time stated in section B.3.1 in respect of *settlement accounts* affected by *metering errors* discovered on or before the first nominated day.

B.2.1.9 “second nominated day submission” means the submission of *metering data* and/or corrected *metering data* by the *market support services licensee* to the *EMC* within the relevant submission time stated in section B.3.1 in respect of *settlement accounts* affected by *metering errors* discovered on or before the second nominated day.

B.2.2 For the avoidance of doubt, unless otherwise expressly indicated, a reference in this Appendix to “T+X” is a reference to the X<sup>th</sup> *business day* after a given *trading day* T.

**B.3 SCHEDULE OF METERING DATA TO BE SUBMITTED BY THE MARKET SUPPORT SERVICES LICENSEE TO THE EMC FOR SETTLEMENT PURPOSES**

B.3.1 The *market support services licensee* shall, in accordance with the schedule below, submit the relevant *metering data* or corrected *metering data* to the *EMC*:

Submission Time	Content of <i>Metering Data</i>	Purpose	The change in IEQ ( $\Delta$ IEQ) or WEQ ( $\Delta$ WEQ) for affected <i>settlement accounts</i> to be used for settlement adjustment in B.4.
On T+5, no later than 5.00pm	<i>Metering data</i> for all <i>settlement accounts</i> for <i>trading day</i> T.	<i>Preliminary settlement statement</i> for <i>trading day</i> T as set out in section 5.4 of this Chapter.	NA
On T+9, no later than 5.00pm	<i>Metering data</i> for all <i>settlement accounts</i> for <i>trading day</i> T corrected for all <i>metering errors</i> discovered up to T+9.  The <i>market support services licensee</i> shall not submit any <i>metering data</i> on	<i>Final settlement statement</i> for <i>trading day</i> T as set out in section 5.6 of this Chapter.	NA

	T+9 unless one or more correction is/are to be made to the <i>metering data</i> of the T+5 submission due to <i>metering errors</i> discovered up to T+9.		
First nominated day submission  After 5.00pm on T+9 to no later than 5.00pm on T+47	<i>Metering data</i> for all <i>settlement accounts</i> for <i>trading day T</i> corrected for all <i>metering errors</i> (if any) discovered on or before the first nominated day.	Settlement adjustment for <i>trading day T</i> in respect of <i>metering errors</i> discovered on or before the first nominated day but not previously reported to the <i>EMC</i> on or before 5:00pm on T+9 pursuant to this Appendix.	Difference between the value in the latest first nominated day submission and the value used for the <i>final settlement statement</i> for <i>trading day T</i> .
Second nominated day submission  After 5.00pm on T+47 to no later than 5.00pm on T+252	<i>Metering data</i> for all <i>settlement accounts</i> for <i>trading day T</i> corrected for all <i>metering errors</i> (if any) discovered on or before the second nominated day.	Settlement adjustment for <i>trading day T</i> discovered on or before the second nominated day but not previously reported to the <i>EMC</i> on or before 5:00pm on T+47 pursuant to this Appendix.	Difference between the value in the latest second nominated day submission and the value in the latest first nominated day submission, and if there is no first nominated day submission, the value used for the <i>final settlement statement</i> for <i>trading day T</i> .

B.3.2 The *market support services licensee* shall not submit any further *metering data* for *trading day T* after 5.00pm on T+252.

B.3.3 The *EMC* shall not effect any settlement adjustment for *trading day T* in respect of any *metering data* for *trading day T* submitted after 5.00pm on T+252.

**B.4 METHODOLOGY OF SETTLEMENT ADJUSTMENT**

B.4.1 Settlement adjustment shall be effected by the *EMC* only for affected *settlement accounts*.

B.4.2 The *metering error* adjustments for each affected *settlement account* for each *settlement interval* shall be determined as follows:

Generation *metering error* adjustment for *energy* (GMEE) and generation *metering error* adjustment for fees (GMEF) shall be determined as follows:

$$GMEE_h^a = \sum_{m(a)} (MEP_h^{m(a)} \times \Delta IEQ_h^{m(a)})$$

$$GMEF_h^a = \sum_{m(a)} (PSOA_h + EMCA_h) \times \Delta IEQ_h^{m(a)}$$

*Load metering error* adjustment (LMEA) shall be determined as follows:

$$LMEA_h^a = WEP_h \times \Delta WEQ_h^a$$

Net *metering error* adjustment (NMEA) shall be determined as follows:

$$NMEA_h^a = GMEE_h^a - GMEF_h^a - LMEA_h^a$$

Where:

- (i)  $MEP_h^{m(a)}$ ,  $USEP_h$ ,  $AFP_h$ ,  $HEUC_h$ ,  $MEUC_h$ ,  $PSOA_h$  and  $EMCA_h$  are rates computed in the *final settlement statement for trading day T*
- (ii)  $WEP_h = \sum (USEP_h + AFP_h + HEUC_h + MEUC_h + PSOA_h + EMCA_h)$
- (iii)  $a =$  a *settlement account*
- (iv)  $h =$  a *settlement interval*
- (v)  $MEP_h^{m(a)} =$  *MEP* for *settlement interval h* for a *market network node* associated with *settlement account a*.

- (vi)  $\sum_{m(a)}$  = sum over all *GRFs*  $m(a)$  and *GSFs*  $m(a)$  associated with *settlement account a*.
- (vii)  $\Delta IEQ_h^{m(a)}$  and  $\Delta WEQ_h^a$  are computed based on B.3.1 above.
- (viii)  $PSOA_h$  = the rate of *PSO's* administrative costs to be recovered from a *settlement account* for a *settlement interval* under section 4.2 of this Chapter.
- (ix)  $EMCA_h$  = the rate of *EMC's* administrative costs to be recovered from a *settlement account* for a *settlement interval* under section 4.2 of this Chapter.

B.4.3 The NMEA for an affected *settlement account* for a given *trading day* shall be aggregated and shall appear as a separate line item in the relevant *market participant's preliminary settlement statement* issued on the *business day* immediately following the date of completion of settlement adjustment relating to the first nominated day or second nominated day, as the case may be.

B.4.4 Where the sum of NMEA for all affected *settlement accounts* for a *settlement interval* is not a zero value, such imbalance shall be allocated through HEUA as set out in Section 3.5.1 of this Chapter in the *preliminary settlement statements* issued on the *business day* immediately following the date of completion of settlement adjustment relating to the first nominated day or the second nominated day, as the case may be.

**Explanatory Note: The sum of NMEA for all affected settlement accounts in a settlement interval may not be zero. This may, for example, happen when the amount of NMEA for an affected settlement account cannot be exactly offset by a corresponding amount of NMEA for another affected settlement account.**

## Annex 2

## REPORT OF THE TASK FORCE ON WHOLESALE SETTLEMENT RE-RUNS

SUBMITTED TO THE EMA ON 2 MARCH 2004

## 1. Background

The presence of metering errors necessitates settlement adjustments in the wholesale electricity market. Currently, when a metering error is detected, EMC performs a wholesale settlement re-run that re-computes quantities and some prices for all settlement accounts (referred to as "FULL re-run" by the industry). The problem with this approach is that one error affects all invoices. It becomes highly inefficient when retailers have to re-compute the invoices of all their consumers with every single detected error. In other words, parties not related to an error are unnecessarily implicated in settlement. Moreover, the current settlement system was not designed to perform re-runs online. Presently, FULL re-runs are performed off-line on an ad hoc basis. EMC requires 5 to 10 days to set up the offline environment to perform the FULL re-run, which result in delays.

In view of such inefficiencies, the EMA requested EMC on 18 Jun 2003 to form and chair a task force to find a way to resolve problems associated with settlement re-runs. In its draft policy guidelines for the task force, the EMA outlined some outcomes to be decided by the task force.

The Task Force was formed and convened for the first time on 30 June 2003 at EMC. The appointed members represent retail licensees, generator licensees, the MSSL, the EMC and the EMA.

Name	Company
Yip Pak Ling	EMC
Paul Poh	EMC
Jennise Ting	EMC
Poa Tiong Siaw	EMC
Ms Foo May Ling	SembCorp Power
Ms Veon Lim	SembCorp Cogen
Mr John Ng	PowerSeraya
Mr Smarco Ho	PowerSeraya
Mr Tan Joo Nhee	Tuas Power
Ms Jazz Feng	Tuas Power Supply
Mr Eu Pui San	Senoko Energy Supply
Mr Ithnin Bin Makani	Senoko Power
Mr T P Manohar	SP Services
Mr Hu Anshuang	SP Services
Mr Kelvin Chan	SP Services
Ms Jasmine Ng	SP Services
Ms Ida Handojo	Keppel Electric
Mr Teo Hock Kheng	National Environment Agency
Mr Khairuddin Abdullah	EMA (Observer)
Mr Ear Chow Foo	EMA (Observer)

Up till 21 August 2003, the Task Force had convened six times. Key decisions and recommendations from the Task Force up to the 6<sup>th</sup> meeting are discussed in Section 3. After the 7<sup>th</sup> meeting on 27 August 2003, task force members' decisions on the type of re-run took a turn. Developments from the 7<sup>th</sup> meeting onwards are discussed in Section 4.

## 2. Problem Definition

In the Task Force's first meeting, the following issues were suggested for the Task Force's consideration:

1. Separation of Wholesale and Retail Settlement
2. Determine cut-off date for wholesale settlement
3. Impact of one meter correction on all invoices (Type of Re-run)
4. Nominated dates to carry out re-runs for each trading day
5. Threshold Amount for Re-run
6. Effects on vesting contracts/grid charges
7. Allocating costs of re-runs
8. The role of estimation
9. The need for audit trails
10. Best practice codes for retailers

## 3. Task Force Recommendations

### 3.1 Separation of Wholesale and Retail Settlement

This separation means settlement practices of the wholesale market need not apply to the retail market and vice-versa. The Task Force agreed to a separation of settlement practices at the wholesale and retail level. (Item 3.2, 2<sup>nd</sup> Meeting).

### 3.2 Cut-off Date for Wholesale Settlement and Nominated Days for Settlement Adjustments

#### 3.2.1 Cut-off Date

The task force agreed that a cut-off date for wholesale settlement is required for the purpose of closure. In deciding on the appropriate cut-off date, the task force considered the following factors (Item 3.1, 4<sup>th</sup> Meeting):

1. Billing cycles for different consumers;
2. Time taken for metering errors to be detected;
3. The need to make adjustments for as many detected metering errors as possible;
4. Practice in other jurisdictions.

The Task Force favoured a wholesale settlement cut-off date of **T+120** business days in view of the implementation of FRC. While members noted that this was a long time, they also agreed that there is a need to capture as many errors as possible. As a result, retailers also have sufficient time to make claims from the wholesale market resulting from errors discovered up to the cut-off date. T+120

business days also coincides with the shortest known cut-off period (6 months) in other jurisdictions.

With this, settlement adjustment will not be carried out in the wholesale market for any error reported after the wholesale settlement cut-off date.

### 3.2.2 Nominated Days

The task force preferred to the practice of having two nominated days to deal with settlement adjustments arising from metering errors. Essentially, nominated days are designated days when metering errors are aggregated. To illustrate, between the trading day T and its associated first nominated day, all metering errors detected will be accumulated. The settlement adjustment done for this nominated day will reflect all these accumulated errors. Similarly, for the second nominated day, the settlement adjustment performed will reflect the accumulated errors detected between the first nominated day and the second nominated day.

The task force favoured the first nominated day to be **T+45** business days to provide for the following:

- 22 business days (monthly billing period)
- 13 business days (maximum period of time for MSSL to issue invoice to contestable customers it services)
- 10 business days (for customers to report error and MSSL to check and submit errors to retailers/EMC).

The second nominated day will fall on **T+120** business day to coincide with the closure of wholesale settlement.

### 3.3 Impact of one meter correction on all invoices (Type of Re-run)

The current practice of FULL settlement re-run involves re-computation of all prices and rates (except MEP, MRP, MFP and USEP) in the wholesale market. Consequently, if MSSL and retailers have to pass through all these changes, they would have to adjust every past invoice. In essence, a metering error discovered for one consumer can result in a re-computation of prices and hence require adjustments to the invoices of all consumers. There is hence no price certainty for consumers. Also, some retailers' systems are not designed to handle price changes properly. Finally, small adjustment amounts and high occurrence of errors compound these problems and create high inefficiencies.

Three undesirable outcomes are identified:

- Too many customers' invoices are affected.
- Frequent changes to invoiced prices/quantities undermine the credibility of the settlement function of the market.
- Re-runs performed for small adjustment amount are not cost-effective.

In view of the above, the Task Force preferred the following practice (Item 2.0, 5<sup>th</sup> Meeting):

1. To adopt a modified partial adjustment method (instead of a full re-run) such that settlement adjustments are made to the affected MPs with the metering errors.
2. The settlement adjustment amount for each affected settlement account for each settlement interval will be calculated as below and posted to the next available preliminary settlement statement following the completion of settlement adjustment for the relevant nominated day:

		<b>Settlement Adjustment Amount</b>
<b>GESC<sub>h</sub><sup>a</sup></b>	<b>(a)</b>	$\sum_{m(a)} \text{MEP}_h^{m(a)} \times \Delta \text{IEQ}_h^{m(a)}$
<b>LESD<sub>h</sub><sup>a</sup></b>	<b>(b)</b>	$\text{USEP}_h \times \Delta \text{WEQ}_h^a$
<b>FSD<sub>h</sub><sup>a</sup></b>	<b>(c)</b>	$\text{AFP}_h \times \Delta \text{WEQ}_h^a$
<b>HEUC<sub>h</sub><sup>a</sup></b>	<b>(d)</b>	$\text{HEUC}_h \times \Delta \text{WEQ}_h^a$
<b>MEUC<sub>h</sub><sup>a</sup></b>	<b>(e)</b>	$\text{MEUC}_h \times \Delta \text{WEQ}_h^a$
<b>PSOA<sub>h</sub><sup>a</sup></b>	<b>(f)</b>	$\text{PSOR} \times \Delta \text{WEQ}_h^a$
<b>EMCA<sub>h</sub><sup>a</sup></b>	<b>(g)</b>	$\text{EMCR} \times \Delta \text{WEQ}_h^a$
<b>PSOA<sub>h</sub><sup>a</sup></b>	<b>(h)</b>	$\sum_{m(a)} \text{PSOR} \times \Delta \text{IEQ}_h^{m(a)}$
<b>EMCA<sub>h</sub><sup>a</sup></b>	<b>(i)</b>	$\sum_{m(a)} \text{EMCR} \times \Delta \text{IEQ}_h^{m(a)}$
<b>FINA<sub>h</sub><sup>a</sup> (Financial Adjustment)</b>		<b>Sum (a) – (i)</b>

Where:

- i.  $\Delta \text{IEQ}_h^{m(a)}$  and  $\Delta \text{WEQ}_h^a$  are net error quantities for a nominated day.
  - ii.  $\text{MEP}_h^{m(a)}$ ,  $\text{USEP}_h$ ,  $\text{AFP}_h$ ,  $\text{HEUC}_h$ ,  $\text{MEUC}_h$  are prices and rates computed in the final settlement statement for trading day T.
  - iii.  $\text{PSOR}$  and  $\text{EMCR}$  are respectively the rates for PSO and EMC fees computed in the final settlement statement for trading day T.
3. A FINA imbalance is created when the counterparty to a metering error relating to one party cannot be identified. When this happens, the sum of FINA across all affected settlement accounts in a settlement interval is non-zero. This imbalance shall be collected from or paid to all load through the HEUC. This allocation will be posted to the same preliminary settlement statement that the settlement adjustment has been posted to.
  4. No interest would be paid or charged to any settlement adjustment amount described above. Also, no adjustments to any other settlement item (eg. vesting contract settlement credit, reserve settlement credit etc) would be made.

The Task Force noted that the partial adjustment method referred to as “PARTIAL re-run” by the industry had a distinct advantage of prices used for settlement adjustments being those calculated in the final settlement statement of the relevant trading day. Hence, retailers need not wait for the adjustments arising from a nominated day to adjust their customers’ invoice. Upon receiving any corrected meter data from MSSL, the retailers can make adjustments based on the metering difference right away.

### **3.4 Threshold Amount for Re-run**

One way to make the current method of full settlement re-run more cost-effective is to institute a threshold amount, or minimum adjustment amount, below which a re-run will be deemed unwarranted. However, with the adopted method of partial settlement adjustment with nominated days, metering errors for a trading day are accumulated until a nominated day for adjustment. Since the adjustments are performed as a scheduled task on the nominated day, there is no need to consider a threshold amount.

### **3.5 Effects on Vesting Contracts**

The agreed method of settlement adjustment does not involve any re-calculation of vesting contract settlement. There is hence no material impact on the MSSL in this regard. (Item 1.3, 2<sup>nd</sup> Meeting).

### **3.6 Allocating Cost of Re-run**

The task force considered two types of cost that are incurred in performing re-runs:

1. Cost to EMC for performing re-runs; and
2. Cost to retailers and customers.

In principle, the task force agrees that these costs should be borne by the party responsible for creating the metering error. In reality, however, the task force realizes that it would be difficult to determine the party responsible for all types of metering errors. It would also not be cost-effective to incur extra expenses in trying to make that determination. Hence, the task force agreed not to consider allocating the cost of re-runs to the party responsible. (Item 4.0, 3<sup>rd</sup> Meeting)

### **3.7 The Role of Estimation**

There were initial concerns that metering errors could result from the application of data estimation by the meter-reader. The method of estimation and the triggering mechanism for data estimation were thought to also contribute to metering errors.

Upon deliberation, the task force felt that a separate process is more appropriate to address estimation-related issues, which relate to the Metering Code. The task force decided that it was not the appropriate body to discuss the issue. (Item 5.0, 3<sup>rd</sup> Meeting)

### 3.8 The Need for Audit Trails

The current method of settlement re-run is done offline and manually. Without a central database to log such issues, there will be insufficient audit trails. EMC recommended that it develop a centralized storage facility (data repository) for audit trails of all corrected meter files. This would allow MPs to keep track of the history of metering changes up to the individual meter and customer level, which the partial re-run module cannot provide.

The Task Force did not reach an agreement on the data repository module.

### 3.9 First Formal Vote following the 5<sup>th</sup> Task Force Meeting

On the Task Force's 5<sup>th</sup> Meeting on 13 Aug 2003, the Task Force was asked to formally vote on the following three options (Item 3.0, 5<sup>th</sup> Meeting):

1. Remain with the current practice of off-line full settlement re-run.
2. Manually perform the partial settlement re-run offline without building an automated module
3. Adopt the proposal to build an automated partial settlement re-run module.

Members were also asked to vote on their choice of nominated days as described in section 3.2.

A voting slip was sent to each member on 14 Aug 2003 for return by fax to EMC.

### 3.10 Result of First Formal Vote

At the 6<sup>th</sup> Task Force Meeting on 21 Aug 03, EMC reported based on fax returns that the majority of Task Force members voted for the Option 2: Manually perform partial settlement re-run without building an automated module.

#### Summary of Result of 1<sup>st</sup> Formal Vote

Company	Option 1 (Status Quo Full settlement re-run)	Option 2 (Manual/ Offline partial re-run)	Option 3 (Partial re-run with proposed automated re-run module)	No. of Nominated days	Date of 1st nominated day (business days)	Date of 2nd nominated day (business days)
SP Services Ltd		X	X	1	T + 45	NA
Keppel Electric Pte Ltd		X		2	T + 25	T + 120
Tuas Power Supply		X		2	T + 25	T + 120
Seraya Energy Pte Ltd		X		2	T + 25	T + 120
NEA				2	T + 45	T + 120

Senoko Power Ltd / Senoko Energy Supply Pte Ltd		X		2	T + 30	T + 120
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**3.10.1 Type of Re-run**

The majority’s choice of Option 2 was made for the following reasons:

1. The cost of building an automatic partial re-run module was too high.
2. The reduced likelihood of metering errors going forward does not justify the investment on an automatic re-run module.
3. The offline manual option is the least cost option to achieve the desired outcome of partial settlement adjustment.

**3.10.2 Nominated Days**

Based on the returns, views on 1<sup>st</sup> nominated day were divided. Sensing that some members may not be fully aware of the partial re-run/nominated day concept, EMC further clarified the following:

1. Retailers need not wait for the adjustments arising from a nominated day to adjust their customers’ invoice.
2. The partial re-run method ensures that the prices used for settlement adjustments are the ones used in the final settlement statement of the relevant trading day. Hence, retailers can simply multiply the difference in quantities by the set prices and bill their customers accordingly once they have received corrected meter files from the MSSL.
3. T+45 business days was initially proposed to ensure that customers have a reasonable amount of time to review their invoice and there is sufficient time to investigate any error reported. One other concern was non-contestable customers, who receive their bills by T+30 business days.

After this clarification, Tuas Power Supply decided to support T+45 business days as the 1<sup>st</sup> nominated day. Keppel Electric and PowerSeraya maintained their vote for T+25 business days.

Given that all Task Force members, except Keppel Electric and PowerSeraya, were in agreement, the final decision for the date of the first nominated day was set at T+45 business days. By a unanimous vote, the date of wholesale settlement cut-off and the 2<sup>nd</sup> nominated day was set at T+120 business days.

**3.10.3 Misconceptions**

Noting that the majority of Task Force members voted for the offline/manual partial re-run, EMC asked the Task Force to discuss the rationale for making the choice. Members responded that their chief concern was that cost to consumers be minimized in implementing a re-run solution. They felt that the offline/manual method would incur the least cost and still achieve the goal of partial settlement adjustments.

From the discussion, the Task Force realised that there was misconceptions between the Task Force members and the EMC. From the perspective of Task Force members:

1. offline/manual partial re-run method performs re-runs only when errors are discovered; and
2. given the dwindling number of metering errors in the past few months, the offline/manual partial re-run method would not incur some of the costs set out in EMC's calculations.

**On Issue 1:**

EMC explained to the Task Force the working of the nominated days system. The very purpose of this system was to perform re-runs for every nominated day (equivalent to every trading day shortly after implementation). Hence, regardless of whether errors are discovered for a particular trading day, a re-run is performed for that trading day during its nominated day adjustment. The manual/offline method has to achieve the agreed objective of nominated days and hence cannot run only when errors are discovered.

**On Issue 2:**

EMC further explained that while the number of metering errors has declined in recent months, it is no guarantee that more would not be discovered in future with expanded consumer contestability. A dedicated server has to be installed for the manual/offline method so hardware maintenance costs will be incurred.

Because the vote taken by the Task Force was made with misunderstandings, EMC advised members to take the clarifications into consideration and decide if they would still choose the manual/offline method. Overall, EMC advised that the Task Force's justifications for choosing the manual/offline option were not robust.

The Task Force noted EMC's clarifications on how the manual/offline partial re-run option was less cost-effective than the automated partial re-run option.

**3.10.4 Decision of Task Force (Item 4.0, 6<sup>th</sup> Meeting)**

While preferring Option 2, the Task Force decided to task EMC to make the recommendation on the option of re-run to the RCP/EMA based on the minimal cost option that achieves the desired outcome of partial settlement adjustment.

EMC accepted the task. EMC also informed the Task Force members that EMC was to draft a Task Force Report to the EMA. With EMA's endorsement of the report, EMC would then recommend a solution to the RCP.

**4. New Development from 7<sup>th</sup> – 9<sup>th</sup> Task Force Meeting**

**4.1 Decision to Re-consider all Options (Item 4.0, 7<sup>th</sup> Meeting)**

EMC circulated a draft Task Force report to members on 25 Aug 03. A 7<sup>th</sup> taskforce meeting was held on 27 Aug 03 to discuss this report, Task Force members agreed to review the entire re-run issue and re-consider all options. To do that, EMC also prepared a comprehensive list of options with detailed costing and features immediately following the 7<sup>th</sup> meeting, covering the following options:

- Option 1: Minimize re-runs by restricting re-run after final settlement run.
- Option 2: Full settlement re-run with new dedicated server for re-run
- Option 3A: Partial re-run (manual/offline/daily) with new dedicated server for re-run
- Option 3B: Partial re-run (automatic) with some software development to existing settlement system.

Members were given 2 weeks to consider the options thoroughly and vote for a second time at the 8<sup>th</sup> Task Force meeting.

#### 4.2 Result of Second Formal Vote – Decision Reversal

At the 8<sup>th</sup> Task Force meeting on 22 Oct 03, the majority of Task Force members voted for Option 1, reversing the earlier decision to opt for partial settlement re-runs.

##### Summary of Result of 2<sup>nd</sup> Formal Vote

Company	Option 1 (Minimize re-runs by restricting re-runs after final run)	Option 2 (Full Re-run with new dedicated server)	Option 3A (Partial re-run [manual/daily/offline ] with new dedicated server)	Option 3B (Partial re-run [automatic] with some software development to existing system)
SP Services Ltd				X
SembCorp Power Pte Ltd	X			
Tuas Power Supply	X			
Power Seraya/ Seraya Energy Pte Ltd	X			
NEA				X
Senoko Power Ltd / Senoko Energy Supply Pte Ltd	X			

**Note:** Keppel Electric provided comments on the options but did not indicate its preference.

In support of Option 1, a set of guidelines was also laid down by the Task Force (Item 4.0, 8<sup>th</sup> Meeting):

Guidelines for treatment of metering errors discovered within 2 months of the trading date: (Exclude errors submitted by MSSL to EMC by 5.00 pm of D+9 business days, where the normal run for the final settlement would be used to take into account the metering errors.)

- 11) For metering errors where the counterparties can be identified, the parties are to bilaterally resolve the differences outside the market. This will minimize the number of off-line re-runs.

- 12) For errors where counterparties cannot be identified, full offline settlement re-runs will be performed only for those that meet a threshold value. This value should reflect the cost of re-runs and be incident-based (as opposed to period-based). EMC shall propose an appropriate materiality value.
- 13) No re-run will be performed for errors arising from over or under-registration of non-contestable consumer meters below 66kv and Pool Meters.
- 14) There will be no re-run of vesting contract settlement.
- 15) For full offline re-runs, the adjustment amount will be posted to MP's as a non-period charge line item in the next available preliminary statement.
- 16) Re-runs can only be carried out when system resources are available i.e. there would be delays in carrying out re-runs.

Guidelines for treatment of metering errors discovered after 2 months of the trading date:

- 17) For metering errors where the counterparties can be identified, the parties are to bilaterally resolve the differences outside the market.
- 18) For metering errors where counterparties cannot be identified, the amounts shall be uplifted from loads via MEUC only if they meet a threshold value. Task Force members shall propose this threshold value in the next Task Force meeting.
- 19) Pursuant to (8), where an error is discovered such that a claimant has to be paid, EMC shall have 90 days to collect the amount from the market and pay the claimant.
- 20) Pursuant to (8), where an error is discovered such that a customer has to pay, the responsible retailer shall make reasonable endeavour to collect the owed sum from the customer and return it to load via MEUC.
- 21) For the purpose of calculating settlement adjustment arising from (8)-(10), the meter error quantity will be multiplied by the WEP, i.e. PARTIAL re-runs. No other adjustments will be made. The period that the load remains liable (entitled) for (to) such claims (refunds) should be in accordance with the Limitation Act.

### **4.3 Winding up the Task Force**

At the 9<sup>th</sup> Task Force meeting on 19 Dec 03, EMC informed the Task Force that EMC's senior management has reviewed the Task Force's recommendations made in its 8<sup>th</sup> Meeting and had the following concerns:

1. The proposal of full offline re-run (Option 1) is not sustainable and poses significant system risk to market clearing. As the market operator, EMC is unable to accept the level of risk.
2. Offline re-runs do not generate proper audit trails.
3. The proposal that claims can be made against (i.e. uplifted from) the wholesale market for a period of up to 6 years cannot be supported because it imposes undue liability on future consumers and incurs significant cost of storing 6 years' worth of data.
4. The proposal that retailers exercise reasonable endeavour to recover any owed amounts from customers is insufficient. There should be an obligation on retailers to pay on behalf of their customers.

In view of the impasse, the Task Force agreed to conclude its work by writing down the principles agreed to by the Task Force for resolving the issues pertaining to settlement re-runs. This list will form the basis of a report to the EMA. If the EMA endorses the report, EMC should be appointed to formulate an implementation proposal and make rule change proposals to the Rules Change Panel.

The Task Force agreed to this approach and agreed on the following set of principles (Item 3.0, 9<sup>th</sup> Meeting):

1. The partial settlement re-run methodology is preferred (i.e. there will be no change to prices).
2. A materiality value should be determined for re-runs for errors discovered within 2 months. The proposed value is \$5,000.
3. For errors discovered after 2 months, the proposed materiality value for uplift in the wholesale market is \$20,000.
4. There should be no re-run of any sort if the value is below the material value so as to minimise downstream settlement re-run by retailers for their customers.
5. There should be no cannibalization of the MCE system.
6. There should be a sound analysis on the recourse period that loads (retailers) have to the wholesale market.

## **5. Other issues**

### **5.1 Best Practice Codes for Retailers**

The Task Force agreed that a set of best practice guidelines for retailers would be useful. As these best practice guidelines could affect the contractual relationship between retailers and their customers, it is concerned about other wider legal issues such as those that govern the rights of consumers. Also, in connection with the agreement on a cut-off date for wholesale market re-settlement, retailers are concerned if it is lawful to impose a similar cut-off date for customer dispute. The EMA was requested to study the following issues from the wider legal and policy perspective:

1. The industry deciding on best-practice for retailers.
2. Retailers imposing a cut-off date for their customers to raise a metering dispute.
3. Retailers using discretion to determine materiality of compensation/claim amounts before passing through.
4. Standardized retailing contracts.

### **EMA's Reply to Task Force**

#### Points 1 and 4:

In the Retailer Code of Conduct, EMA has set the minimum standards of behavior that a retailer must observe in retailing to consumers. It is also worth noting product differentiation provides consumers a range of packages to choose from so that they can make the choice of retailer from whom they wish to purchase electricity.

Standardization of retail contracts would restrict product differentiation and would have adverse effect on retail competition.

Points 2 and 3:

These are commercial matters between retailers and their customers. Retailers are expected to abide by the terms and conditions of their contracts with their customers.

**PowerGrid's Views on Metering Errors**

The Task Force asked PowerGrid if it knew of other types of meter-related errors that could occur, especially those that could only be discovered after T+120 business days, when wholesale settlement is closed. PowerGrid replied that while there can be no guarantee that no errors would emerge after the cut-off date, there may not be a big cause for concern. Firstly, PowerGrid has proper procedures in place to ensure that meter equipment was sound. Secondly, meters are now read daily and any errors arising from metering problems would have been detected and resolved within the period.

On whether PowerGrid can adjust their process to minimize meter-related errors, it re-iterated that it already has a stringent set of procedures in place.

**Retailers' Concern**

Retailers remained concerned that they will continue to be liable to customers while not having recourse to other parties when metering errors are discovered after the 120 business day settlement cut-off. The Task Force requested that EMA study how other jurisdictions deal with the liability of retailers and consumers after the closure of wholesale settlement.

**6. Recommendation**

The Task Force on Settlement Re-runs recommends that EMC propose a solution for Wholesale Settlement Re-runs to the Rules Change Panel. In its recommendation, EMC should maximally reflect the principles of agreement by the Task Force in the 9<sup>th</sup> Task Force Meeting. It should also bear in mind retailers' concern about the lack of recourse to the wholesale market as a result of customer claims after wholesale settlement closure.

**Annex 3: Financial Imbalance**

There are 4 possible scenarios where a financial imbalance will occur:

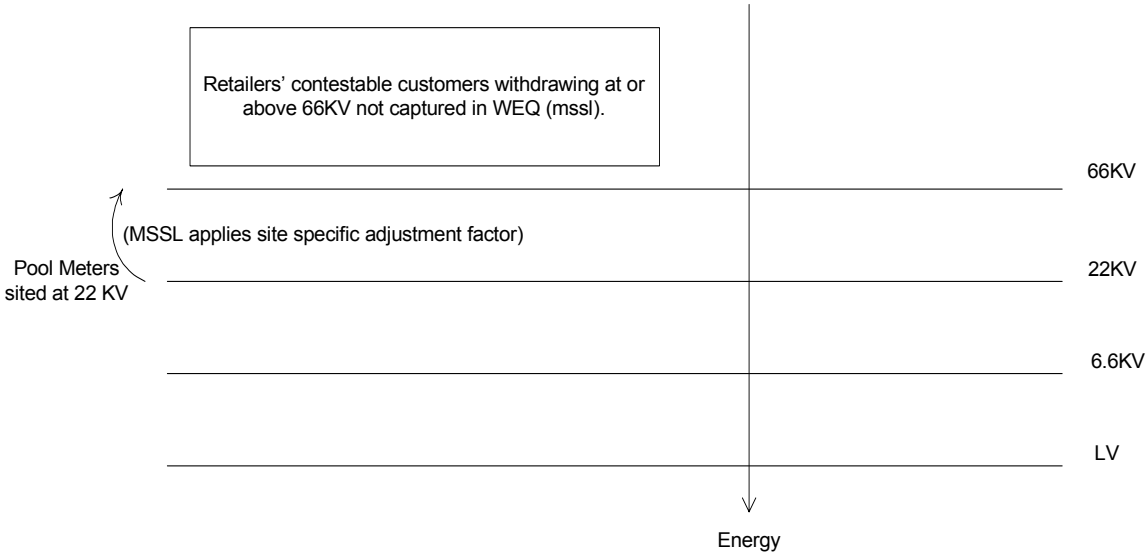
1. Where there is a metering error associated with a retailer’s or MSSL’s customer withdrawing at or above 66kV lines.
2. Where there is a metering error associated with a generator at or above 66 kV.
3. Where there is a metering error for the pool transformers.
4. Where there is a metering error associated with a generator below 66 kV which is part of the load of MSSL.

**Scenario 1:**

The formula in the text box depicts what goes into the calculation of WEQ associated with MSSL:

$  \begin{aligned}  \text{WEQ}^{\text{mssl}} = & \\  & \text{Energy withdrawn at all Pool meters (22 kV transformed to 66kV)} \\  & \quad + \\  & \text{Gross energy withdrawn at load facilities, as defined in the market rules (other than} \\  & \text{through pool meters and intertie meters), by Non-Market Participant Consumers and non-} \\  & \text{contestable consumers connected to the transmission system at 66kV and above} \\  & \quad - \\  & \text{Energy withdrawn by Market Participant Consumers below 66kV} \\  & \quad + \\  & \text{Energy injected by GRFs below 66kV}  \end{aligned}  $
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**Figure 1: Graphical Illustration**



Note that contestable consumers' withdrawal at or above 66kV lines is not captured in this formula. Hence, any meter error associated with such contestable consumers cannot be offset against MSSL. This creates a Financial Imbalance.

**Scenario 2:**

If an error is associated with a generator's meter, it is likely that no counter-party can be identified. This creates a Financial Imbalance

**Scenario 3:**

If an error is associated with a pool transformer meter, it is likely that no counter-party can be identified as the consumption will be charged to MSSL only. This creates a Financial Imbalance

**Scenario 4:**

If an error is associated with a generator's meter below 66 kV (meaning SP Services' load will be inaccurate), the generator will be paid less/more. The total amount paid to generators will then be different from what EMC charges MSSL. This creates a Financial Imbalance.