



## Notice of market rule modification

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**Paper No.** EMC/RCP/21/2005/243

**Rule reference:** Chapter 7, Section 4.4.4

**Proposer:** Daniel Lee, Energy Market Authority

**Date received by EMC:** 16 Jun 05

**Category allocated:** 2

**Status:** Approved by EMA

**Effective Date:** 24 Aug 05

**Summary of proposed rules change:**

This rule change rectifies an omission in the rules that describes the USEP+HEUC/Nodal Price Neutralisation procedure.

**Date considered by Panel:** 5 Jul 05

**Date considered by EMC Board:** 28 Jul 05

**Date considered by Energy Market Authority:** 19 Aug 05

**Proposed Rule Modification:**

Refer to attachment

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



PAPER NO. : **EMC/BD/04/2005/04(b)**

PAPER NO. : **EMC/RCP/21/2005/243**

SUBJECT : **RECTIFICATION OF PRICE NEUTRALISATION RULE**

FOR : **DECISION**

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Senior Economist**

VETTED BY : **PAUL POH LEE KONG  
SVP, Market Administration**

DATE : **28 JULY 2005**

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### **Executive Summary**

This rule modification submission is to rectify an omission in the rules for nodal price neutralisation for embedded generators and their associated load. The RCP recommends that the Board **adopt** this proposal.

## 1. Introduction

This paper assesses EMA's rule modification submission to rectify a drafting error in the Market Rules for price neutralization.

## 2. Background

### (USEP+HEUC) / Nodal Price Neutralization

Section 4.4 of Chapter 7 of the Market Rules provides for generators that are granted "embedded" generation status by the EMA to receive nodal price neutralization for their associated load. To qualify for embedded generation facility status, a generation licensee's or its related corporation's consumption of electricity generated by the licensee's generation facility must occur:

1. on the same physical site as the site of the generation facility; or
2. on the physical site that is majority owned by it (or its related corporations) and immediately adjacent and contiguous to the site of the generation facility.

Once classified as an embedded generation facility, it will be assigned to a group of embedded generation facilities that are on the same physical site or immediately adjacent and contiguous to each other's sites. As a group, embedded generators offset their associated load (withdrawals) with their energy injections into the grid. The settlement adjustment to achieve this is called (USEP+HEUC)/Nodal Price Neutralization. This adjustment is meant to remove nodal price risk<sup>1</sup> faced by embedded generators who generate for self-consumption under a gross pool arrangement. It ensures that embedded generators can consume up to their full gross injection at their respective MEPs.

The normal settlement process calculates energy payments owing to embedded generators at their respective nodal MEPs and the energy charges for their withdrawals at USEP+HEUC. The way to "neutralize" their position is to calculate and apply an additional settlement item (NELC or NEGC) to them such that they are effectively settled on net injections at MEPs (generator's nodal prices) or net withdrawal at USEP + HEUC (load prices) for their energy portion.

## 3. Rule Analysis

Under the Market Rules, one settlement account is assigned to a group of embedded generation facilities and its associated load. To calculate the amount of neutralization adjustment for each such settlement account, there are separate 2 situations:

(For simplicity, we use an example where there is only one embedded generation facility in an embedded generator group.)

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<sup>1</sup> The Singapore wholesale electricity market pays generators at the generator's nodal price (MEP) and charges loads USEP plus HEUC. USEP is a volume weighted average nodal prices at all consumption nodes. When constraints occur, any one generator's nodal price could vary significantly from USEP plus HEUC. Thus, an embedded generator could be paid a price for its generation which is substantially different from the price charged for its consumption. This exposes it to nodal price risk.

**Case 1: Associated Load (WEQ) is greater than or equal to Generation (IEQ)**

Here, the embedded generator has withdrawn more than or equal to its injection. Before neutralization, it would have been charged  $(USEP+HEUC)*WEQ$  for withdrawal and paid  $MEP*IEQ$ .

With neutralization, it should receive a credit of  $IEQ * (USEP+HEUC - MEP)$ .

**Case 2: Associated Load (WEQ) is less than Generation (IEQ)**

Here, the embedded generator has injected more than its withdrawal. With neutralization, it should receive a credit of  $WEQ * (USEP+HEUC - MEP)$ .

**3.1 The Rule in Question**

Section 4.4.4 of Chapter 7 (see below) of the Market Rules is intended to provide for Case 1. It currently states that Net Energy Load Credit (NELC) would be calculated when a group of embedded generation facilities' withdrawal (or load) is **greater than** its injection. However, this implies that when withdrawal equals injection, no NELC would be calculated. This was unintended. The rule should have provided for the calculation of NELC when withdrawal is **greater than or equal to** injection.

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**Chapter 7: Settlement**

4.4.4 The EMC shall calculate the Net Energy Load Credit for a group of embedded *generation facilities* if the group of embedded *generation facilities*' associated *load* in a *settlement interval* is greater than the group of embedded *generation facilities*' injection into the grid in that *settlement interval*.

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**3.2 Proposed Change**

The proposed change is to provide that NELC will be calculated when withdrawal is greater than or equal to injection.

**4. Conclusion**

This rule change is necessary to correct a drafting omission.

**5. Consultation**

We have published the proposed text of modifications on the EMC website for comments. No comments have been received for consideration.

**6. Legal sign off**

Text of rule modification has been vetted by EMC's legal counsel to reflect the intent of the rule change submission.

**7. Recommendations**

The RCP recommends that the EMC Board

- a. **adopt** the rule modification proposal as set out in the Annex 1; and
- b. **recommend** that the proposed modification come into force one business day after the date on which the approval of the Authority is published by the EMC.

**ANNEX 1: Proposed Rule Modification**

<b>Existing Rules (Release 1 Apr 2005)</b>	<b>Proposed Rules (Deletions represented by strikethrough text and addition underlined.)</b>
<p><b><u>Chapter 7</u></b></p> <p>4.4.4 The <i>EMC</i> shall calculate the Net Energy Load Credit for a group of embedded <i>generation facilities</i> if the group of embedded <i>generation facilities</i>’ associated load in a <i>settlement interval</i> is greater than the group of embedded <i>generation facilities</i>’ injection into the grid in that <i>settlement interval</i>.</p> $NELC_h^{sa} = \sum_{m(sa)} [IEQ_h^m \times (USEP_h + HEUC_h - MEP_h^m)]$ <p>where:</p> <p>NELC = Net Energy Load Credit for a <i>settlement account</i> sa in <i>settlement interval</i> h</p> <p><math>\sum_{m(sa)}</math> represents a summation over all <i>MNNs</i> belonging to <i>settlement account</i> sa assigned to the group of embedded <i>generation facilities</i></p> <p><math>IEQ_h^m</math> = energy injected into <i>MNN</i> m in <i>settlement interval</i> h</p> <p><math>MEP_h^m</math> = Market Energy Price for <i>MNN</i> m in settlement interval h</p> <p><math>USEP_h</math> = the Uniform Singapore Energy Price in settlement interval h</p>	<p><b><u>Chapter 7</u></b></p> <p>4.4.4 The <i>EMC</i> shall calculate the Net Energy Load Credit for a group of embedded <i>generation facilities</i> if the group of embedded <i>generation facilities</i>’ associated load in a <i>settlement interval</i> is greater than <u>or equal to</u> the group of embedded <i>generation facilities</i>’ injection into the grid in that <i>settlement interval</i>.</p> $NELC_h^{sa} = \sum_{m(sa)} [IEQ_h^m \times (USEP_h + HEUC_h - MEP_h^m)]$ <p>where:</p> <p>NELC = Net Energy Load Credit for a <i>settlement account</i> sa in <i>settlement interval</i> h</p> <p><math>\sum_{m(sa)}</math> represents a summation over all <i>MNNs</i> belonging to <i>settlement account</i> sa assigned to the group of embedded <i>generation facilities</i></p> <p><math>IEQ_h^m</math> = energy injected into <i>MNN</i> m in <i>settlement interval</i> h</p> <p><math>MEP_h^m</math> = Market Energy Price for <i>MNN</i> m in settlement interval h</p> <p><math>USEP_h</math> = the Uniform Singapore Energy Price in settlement interval h</p>