

Notice of Market Rules Modification

Paper No.:	EMC/RCP/129/2022/380
Rule Reference:	Chap 5 Sec 3.7.3.7
Proposer:	EMC, Market Admin
Date Received by EMC:	7 January 2022
Category Allocated:	2
Status:	Approved by EMA
Effective Date:	14 September 2022

The Automatic Financial Penalty Scheme (AFPS) was introduced by the Energy Market Authority (EMA) in the Singapore Wholesale Electricity Market to incentivise compliance with dispatch schedules, thereby enhancing system reliability and stability. There are, however, exemptions to the AFPS as provided in the Market Rules.

A recent rule change established that the Power System Operator (PSO) may direct Generation Registered Facilities (GRFs) relating to the fuel to be used during generation. In view of this, this paper examines if exemptions from the AFPS should be extended to GRFs undergoing a fuel changeover as required under such a direction from the PSO.

The Energy Market Company's (EMC) view is that a GRF performing a fuel changeover in compliance with the PSO's direction as referred to in Chapter 5, section 3.7.1.7(a) should be exempted from the AFPS. The proposed rule modifications to give effect to the intent of this proposal can be found in Annex 1.

At the 129th RCP meeting, the RCP unanimously supported the proposed rule modifications.

Date considered by Rules Change Panel:	12 May 2022
Date considered by EMC Board:	21 June 2022
Date considered by Energy Market Authority:	09 September 2022
Proposed rule modification:	See attached paper
Reasons for rejection/referral back to Rules Change Panel (if applicable):	

PAPER NO : **EMC/BD/CIR/2022/07**

RCP PAPER NO. : **EMC/RCP/129/2022/380**

SUBJECT : **EXEMPTION FROM THE AUTOMATIC FINANCIAL PENALTY SCHEME DURING FUEL CHANGEOVER AS DIRECTED BY THE PSO**

FOR : **DECISION**

PREPARED BY : **VINCENT WISE
ECONOMIST**

REVIEWED BY : **POA TIONG SIAW
SVP, MARKET ADMINISTRATION**

DATE OF MEETING : **12 MAY 2022**

Executive Summary

The Automatic Financial Penalty Scheme (AFPS) was introduced by the Energy Market Authority (EMA) in the Singapore Wholesale Electricity Market to incentivise compliance with dispatch schedules, thereby enhancing system reliability and stability.

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At the 129th RCP meeting, the RCP unanimously supported the proposed rule modifications.

1. Introduction

The Automatic Financial Penalty Scheme (AFPS) was introduced in the Singapore Wholesale Electricity Market (SWEM) as part of the Energy Market Authority's (EMA) policy decision on "Review of Policy on Direct Supply of Electricity by Generating Sets to Onsite Loads".

With the AFPS, the Energy Market Company (EMC) will impose financial penalties on Generation Registered Facilities (GRFs), which are subject to the Power System Operator's (PSO) central dispatch, whenever they deviate from their schedules by more than 10MW.

A recent EMA-directed rule change established that the PSO may direct GRFs relating to the fuel to be used during generation. In view of this, this paper examines if exemptions from the AFPS should be extended to GRFs undergoing a fuel changeover as required under such a direction from the PSO.

2. Background

2.1 *EMA's policy decision on the AFPS*

In 2010, the EMA conducted a comprehensive review of its policy on "Direct Supply of Electricity by Generating Sets to Onsite Load" and made the decision to implement, among other things¹, the AFPS.

The AFPS is to provide for a penalty to be automatically imposed and collected from generation companies (Gencos) when their GRF(s) deviates from dispatch schedules. With this, the PSO need not refer, and the Market Surveillance and Compliance Panel (MSCP) need not conduct investigation into, straightforward non-compliance with dispatch.

Deviating Generation Registered Facility

Under the AFPS, penalties will be imposed on Gencos with deviating GRFs, which are those GRFs that have deviated from their dispatch schedules by more than 10MW, except for the following reasons:

- The GRF's deviation is to help maintain the security or reliability of the power system
- The GRF's deviation is out of the Genco's control
- The GRF's deviation is required/permitted under governing documents such as Transmission Code, Market Rules and System Operation Manual

Specifically, GRFs are exempted from the AFPS under the following scenarios ('existing Exempted Cases'), as expressly provided for under section 3.7.3 of Chapter 5 of Market Rules:

- a. The GRF is operating **under Automatic Generation Control (AGC)** throughout the dispatch period,
- b. The GRF is **issued dispatch instructions by the PSO** to deviate from its dispatch schedules and such instructions have been complied with,
- c. The GRF is undergoing **re-commissioning tests** that have been approved by the PSO,
- d. The GRF experienced a **forced outage** which **caused** the GRF to **automatically disconnect** from the transmission system. The GRF will be exempted from AFPS for that dispatch period and the dispatch period after,
- e. The GRF is being **started up or shut down**. For the avoidance of doubt, if a GRF fails to synchronise, it is not considered as being started-up and thus not exempted from the AFPS,
- f. The GRF is performing **fuel changeover** as required under the Transmission Code, and
- g. The GRF is operating **under Free Governor Control** throughout the dispatch period and is responding positively to a power system disturbance.

¹ Other determinations include a) shifting grid charges to a fixed charging regime, b) net treatment of non-reserve charges for embedded generators, c) Gross bidding of Embedded Generators, and d) Non-Frequency Responsive (NFR) cap. Please refer to [EMA's determination paper](#) for more details.

In addition to the above exemptions, Gencos can appeal to the MSCP for a refund of the penalty if they can subsequently demonstrate that compliance with the dispatch schedules would endanger the safety of any persons, substantially damage equipment, or violate any applicable law.

Penalty value and collection

The penalty value for a deviating GRF for any given dispatch period is, in effect, set at the rate of 0.5 x (USEP+HEUC) for each MW of deviation² from its schedule (in excess of 10 MW), subject to a minimum of \$5000, as determined in accordance with the formula below:

$$\text{Financial Penalty} = \text{Max} \{ 2 \times (\text{USEP} + \text{HEUC}) \times [\frac{1}{2} \times | \text{EndScheduledQty} - \text{EndGeneration} | \times \frac{1}{2} \text{ hour} - 2.5 \text{ MWh}], \$5000 \}$$

where: EndGeneration is the GRF's gross generation output (in MW) at the end of a *dispatch period*
 EndScheduledQty is the GRF's scheduled output (in MW) for a *dispatch period*

EMC will issue the preliminary and final financial penalty statement on the 6th and 10th business day after the trading day respectively, and will collect the penalty from the MPs on the 20th calendar day after the trading day through direct debit from the Genco's bank account.

The penalty collected from AFPS will be re-distributed to consumers via the Monthly Energy Uplift Charge (MEUC).

2.2 Recent Rule Change on PSO Directions on GRFs

The EMA's final determination paper on "Modifications to Electricity Market Rules in relation to pre-emptive direction to ensure secure and reliable electricity supply" published in 2021 has introduced rule changes in relation to the directions that the PSO may issue to Gencos under the System Operation Manual (SOM). These changes are reflected in Chapter 5, section 3.7.1.7 of the Market Rules.

Said final determination paper provided that the PSO may issue directions to Gencos to have their GRF generate using Standby Gas³ or diesel. Compliance with said direction may require the directed GRF to perform a fuel changeover. It is therefore proposed that such a deviation should be exempted from the AFPS, similar to how fuel changeovers required under the transmission code are exempted from the AFPS. Section 3 reviews if such a GRF should be exempted from the AFPS.

3. Review of the Proposed AFPS Exemption

3.1. Objectives of the AFPS

The objective of the AFPS is to incentivise generators to comply with dispatch schedules and therefore reduce the need for the PSO to manually intervene with schedules, thus maintaining system security and dispatch optimality. Meanwhile, it is also acknowledged that deviation caused by events which are out of Gencos' control should not be penalised.

Therefore, when reviewing whether additional cases should be exempted, the following criterion apply:

- a. If the deviation is to help maintain system security and reliability, it should not be penalised;

² The MW deviation is measured by the absolute difference between the energy schedule (MW) and the actual generation output level at the end of dispatch period as captured by PSO's Energy Management System.

³ This Standby Gas will be drawn from a standby liquefied natural gas facility from which Gencos can draw upon if needed to, for instance when their PNG supplies are affected. For more details, please refer to EMA's Final Determination Paper, "Modifications to Electricity Market Rules in relation to pre-emptive direction to ensure secure and reliable electricity supply" dated 21 December 2021.

- b. If the deviation is due to reasons out of the Genco’s control and the Genco is not the best party to manage the risk, it should not be penalised under AFPS; and
- c. If there is another mechanism in place that provides more effective deterrence to the deviation, the Genco should not be penalised under AFPS.

3.1.2 Analysis of Proposed AFPS Exemption

The EMC’s assessment is that GRFs that undergo a fuel changeover in compliance with the PSO’s directions as per Chapter 5, section 3.7.1.7 should be exempted from the AFPS. The EMC assesses that the Market Rules should be amended to better reflect this.

When performing a fuel changeover, a GRF may need to de-load to a range where a fuel changeover can be done. The GRF’s effective maximum capacity may also change when it switches to a different fuel. A GRF undergoing a fuel changeover hence may not be able to avoid deviating from its dispatch schedule. Considering that the fuel changeover is done in compliance with the PSO’s directions, and such deviations are out of the Genco’s control during fuel changeovers, such GRFs should be exempted from the AFPS.

The EMC further assesses that amending the rules to reflect this has its merits. While deviations from a GRF’s dispatch schedule in compliance with the PSO’s dispatch instructions is a current exemption⁴, it is not clear whether a directions or instructions from the PSO in relation to the fuel to be used fall under these dispatch instructions specifically. Hence, adding that GRFs performing fuel changeovers as required by such PSO directions are exempted from the AFPS provides more clarity. This is in addition to the current AFPS exemption for GRFs performing fuel changeovers as required by the transmission code.

4. Proposed Rule Modifications

To enact the changes as expressed in Section 3 of this paper, the EMC has drafted rule modifications as set out in Annex 1.

5. Legal Sign Off

The text of the proposed modifications to the Market Rules set out in Annex 1 has been vetted by EMC’s internal legal counsel, whose opinion is that the proposed modifications reflect the intent of the modification proposals as expressed in the third column of the table in Annex 1.

6. Consultation

The proposed modifications were published for consultation on 12 April 2022, and we have received comments from Senoko Energy and PacificLight Power.

Table 1: Comments Received and EMC’s response

S/N	Reference	Comments	EMC’s Response
Senoko Energy			
1	General Comments	Senoko is supportive of the proposed exemption for AFPS. In addition to PSO directed FCO, Senoko would like EMA	EMC notes Senoko’s comments.

⁴ See Chapter 5, section 3.7.3.2 of the Market Rules.

S/N	Reference	Comments	EMC's Response
		to consider extending exemption for FCO due to ICP activation during system stress.	
PacificLight Power			
1	General Comments	We appreciate the opportunity to review the proposed rule changes. PLP have no further comments on the paper.	EMC notes PLP's comments.

7. Decision at the 129th RCP Meeting

The RCP unanimously voted in favour of the following EMC recommendations:

- a. **To support** the proposed modifications as set out in Annex 1;
- b. **To recommend** that the EMC Board adopts the proposed rule modifications as set out in Annex 1; and
- c. **To recommend** that the proposed rule modifications as set out in Annex 1 come into force one day after the date on which the approval of the Authority is published by the EMC.

ANNEX 1: Proposed Rule Modifications

Existing Market Rules (1 April 2022)	Proposed Rule Change (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
Chapter 5	Chapter 5	
3 OBLIGATIONS AND RESPONSIBILITIES	3 OBLIGATIONS AND RESPONSIBILITIES	
<p>3.7 OBLIGATIONS OF GENERATORS</p> <p>3.7.3 If a <i>generation registered facility</i> deviates, in the manner and to the extent described in section D.3.1 of Appendix 5D, from its <i>real-time dispatch schedule</i> or its <i>short-term schedule</i> (as the case may be) which is deemed to be or is otherwise issued as the <i>dispatch instructions</i> issued by the <i>PSO</i>, such <i>generation registered facility</i> shall be deemed to be a deviating <i>generation registered facility</i> unless the deviation occurred in respect of <i>dispatch period(s)</i> where the <i>generation registered facility</i>:</p> <p>3.7.3.1 was at all relevant times operating under <i>AGC</i>;</p> <p>...</p> <p>3.7.3.7 was performing a fuel changeover as required under the <i>transmission code</i>; or</p> <p>3.7.3.8 was on free governor control and responding positively to a <i>power system</i> disturbance.</p>	<p>3.7 OBLIGATIONS OF GENERATORS</p> <p>3.7.3 If a <i>generation registered facility</i> deviates, in the manner and to the extent described in section D.3.1 of Appendix 5D, from its <i>real-time dispatch schedule</i> or its <i>short-term schedule</i> (as the case may be) which is deemed to be or is otherwise issued as the <i>dispatch instructions</i> issued by the <i>PSO</i>, such <i>generation registered facility</i> shall be deemed to be a deviating <i>generation registered facility</i> unless the deviation occurred in respect of <i>dispatch period(s)</i> where the <i>generation registered facility</i>:</p> <p>3.7.3.1 was at all relevant times operating under <i>AGC</i>;</p> <p>...</p> <p>3.7.3.7 was performing a fuel changeover as required under the <i>transmission code</i> <u>or in compliance with the <i>PSO</i>'s directions as referred to in section 3.7.1.7 (a);</u> or</p> <p>3.7.3.8 was on free governor control and responding positively to a <i>power system</i> disturbance.</p>	<p>To provide that a generation registered facility in compliance with the <i>PSO</i>'s directions as referred to in section 3.7.1.7(a), which could include directions in relation to the kind of fuel to be used for generation, should not be deemed to be a deviating generation registered facility for the purposes of the automatic financial penalty scheme.</p>

Existing Market Rules (1 April 2022)	Proposed Rule Change (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Modification
The automatic financial penalty scheme described in Appendix 5D shall apply to the <i>market participant</i> of such deviating <i>generation registered facility</i> .	The automatic financial penalty scheme described in Appendix 5D shall apply to the <i>market participant</i> of such deviating <i>generation registered facility</i> .	