

Implementation Procedures for Demand Response and Interruptible Load from 1st January 2025 until EMC System Change Completion

1 Introduction

On 1 Jan 2023, the Energy Market Authority (EMA) launched a two-year regulatory sandbox to enhance participation in the Demand Response (DR) and Interruptible Load (IL) programmes.¹

From 1 Jan 2025 onwards, with the end of the sandbox, the EMA has determined that the current DR sandbox parameters will remain in place until Energy Market Company (EMC) is ready to roll out the system changes required for permanent modifications to the DR programme.²

Meanwhile, the EMA has also determined that the original IL framework pre-sandbox will come into effect on 1 Jan 2025.³

This paper describes the detailed programme parameters and procedures as agreed with the EMA, spanning 1 Jan 2025 until EMC system changes are complete (subsequently referred to in this paper as “**post-sandbox**”).

2 Demand Response Programme

To participate in the DR programme, load facilities have to be registered as a Load Registered Facility (“LRF”) to become dispatchable. LRFs will have to submit energy bids that indicate their willingness to curtail their demand, also known as the bid price for energy. If the energy clearing price is at least equal to the bid price, the LRF will generally be scheduled and activated for DR. Upon activation, LRFs will have to reduce their energy consumption by the scheduled quantity.

The target audience includes loads that are willing to curtail consumption on short notice (e.g., non-critical industrial processes) to potentially receive incentive payments upon activation.

2.1 Post-sandbox compliance thresholds and penalty amounts

Post-sandbox, the compliance threshold for energy curtailment (when activated for DR) and energy consumption (when not activated for DR) will be 80%.

¹ https://www.ema.gov.sg/content/dam/corporate/our-energy-story/energy-demand/factsheet-demand-response-interruptible-load_20221103.pdf

² <https://www.ema.gov.sg/partnerships/consultations/2024/proposed-enhancements-to-demand-response-interruptible-load-programmes>

³ Same as above

In accordance with the policy intent of the Temporary Price Cap (“TPC”) Final Determination Paper, the penalty formula for DR facilities that are scheduled but non-compliant will include Reference USEP (“RUSEP”) during TPC activations.⁴

Table 1 below set out the compliance conditions and payment / penalty amount calculation formulae that shall be applied post-sandbox.

Table 1: Post-sandbox compliance thresholds and penalty amounts

Scenario	Compliance	Post-Sandbox Condition	Payment/ Penalty	Post-Sandbox Formula
Scheduled for load curtailment	Fully compliant	Actual energy curtailment \geq Scheduled energy curtailment	Incentive payment	$LCP \times LCQ$
	Non-compliant	Actual energy curtailment $< 0.8 \times$ Scheduled energy curtailment	Financial penalty	Up to $Max\{[Max(RUSEP, USEP) + HEUC] \times deviation\ quantity, \$5,000\}$
	Partially compliant	Otherwise	NA	-
Not scheduled for load curtailment	Fully compliant	Actual energy consumption $\geq 0.8 \times$ Scheduled energy consumption	NA	-
	Non-compliant	Otherwise	Financial penalty	$Max[(USEP + HEUC) \times deviation\ quantity, \$5,000]$

2.2 Concessions

A concession refers to the refund⁵ of financial penalties due to an instance⁶ of non-compliance based on the 80% compliance threshold.⁷

DR facilities registered prior to 1 Jan 2025⁸ (i.e., before or during the sandbox period) will have their remaining sandbox concessions grandfathered. These concessions will not be reset after they are expended.

New DR facilities registered post-sandbox but before EMC rolls out the system changes to the DR framework will have two concessions. Similarly, any remaining concessions will be grandfathered when EMC system changes are complete, and concessions will not be reset after they are expended.

New DR facilities registered after EMC system change completion will have two concessions, expiring six months after the facility registration effective date.

⁴ <https://www.ema.gov.sg/partnerships/consultations/2023/consultation-on-temporary-price-cap>

⁵ The refund process is described in section 2.3

⁶ “An instance” is described in section 2.2.1

⁷ 80% compliance threshold as described in Table 1

⁸ Based on registration effective date as issued by EMC

2.2.1 Definition of “an instance”

For DR, “an instance” refers to consecutive periods of non-compliance for an LRF (up to 4 hours / 8 periods), regardless of activation or non-activation, as illustrated in Table 2 below.

Table 2: Examples of “an instance” for DR

One instance	Period	1	2	3	4	5	6	7
	Compliance	×	×	×	×	×	×	×
Two instances	Period	1	2	3	4	5	6	7
	Compliance	×	×	✓	✓	×	×	×
Three instances	Period	1	2	3	4	5	6	7
	Compliance	×	✓	×	×	✓	×	×

2.3 Penalty refunds

Post-sandbox, on a daily basis under the Automatic Financial Penalty Scheme (AFPS), all LRFs will continue to be subject to the 95% compliance thresholds and penalty amounts.

If the participant assesses that it should not have been penalised (e.g., due to concessions, or due to lowered compliance threshold from 95% to 80%) or the penalty amount should have been less (e.g., post-sandbox penalty amount is less than AFPS amount), the participant will have to initiate the penalty refunds by submitting a refund request to EMA and EMC.

If the applicable penalty amount turns out to be a negative number (e.g., Load Curtailment Quantity is negative), the participant is required to initiate a refund process (return monies to EMC), as if the penalty amount is zero.

Similarly, if the applicable incentive payment amount turns out to be a negative number (e.g., Load Curtailment Quantity is negative), the participant is also required to initiate a refund process (claim monies from EMC), as if the incentive payment amount is zero.

Refunds will be made on a monthly cycle.

Timeline for penalty refunds

EMC will recover the amount required to refund LRFs from the Monthly Energy Uplift Charge (“MEUC”).

Table 3 below shows an illustrative example for the penalty refund procedure for Trading Day (“TD”) 20 Jan and 25 Jan, where an LRF is penalised by AFPS, but penalty amounts should be lower (or zero) post-sandbox.

Table 3: Illustrative Penalty Refund Procedure for Trading Day (“TD”) 20 Jan and 25 Jan

<i>31 Jan</i>	End of month
<i>31 Jan + 6BD</i>	Preliminary settlement run for all trading days in January
<i>31 Jan + 10BD</i>	Final settlement run for all trading days in January
<i>By 31 Jan + 11BD⁹</i>	MP to submit (via email to Pearl_TAN@ema.gov.sg , Jason_LUO@ema.gov.sg , Oscar_CHEAH@ema.gov.sg , and marketoperations-b@emcsg.com) penalty refund request for TD 20 & 25 Jan
<i>By end-Mar</i>	MP notified via email on approved refund request
<i>Mar</i>	EMC recovers refund amount from MEUC
<i>20 Apr</i>	EMC finishes collecting MEUC for March trading dates
<i>Apr</i>	MP invoices EMC for refund amount
<i>End-Apr</i>	MP to receive penalty refund amount from EMC

When making a DR penalty refund request, MPs may fill in and attach the Refund Request Form available on EMC’s website¹⁰, which automatically calculates the relevant refund amount.

3 Interruptible Load Program

To participate in the IL program, load facilities have to be registered as a Load Registered Facility (“LRF”) to become dispatchable. LRFs will have to submit primary and / or contingency reserve offers, to be ready to interrupt energy consumption if a system contingency occurs.

If the reserve clearing price is at least equal to the offer price, the LRF will generally be scheduled for IL. When a system contingency occurs, LRFs scheduled for IL may be activated. Upon activation, LRFs will have to reduce their energy consumption.

The target audience includes loads that can afford to be curtailed infrequently, but unexpectedly (e.g., commercial refrigeration), receiving reserve payments for being on standby.

3.1 Reversion to Original IL framework Pre-Sandbox

The EMA has determined to discontinue the IL sandbox conditions.

From 1st Jan 2025 onwards, there shall be no concessions for IL non-compliance (i.e., unable to provide reserves or under-delivery of reserves when activated). IL facilities will not be paid for scheduled reserve quantity if they are non-compliant.

The EMA will undertake a comprehensive review of the IL product, so that it would better complement supply-side measures to address system shortfalls.

⁹ EMC will not be able to process late requests for DR refunds.

¹⁰ <https://www.home.emcsg.com/register/Load-Facility-Registration>