



**ENABLING PARTICIPATION OF EMBEDDED GENERATION
FACILITIES IN THE DEMAND RESPONSE AND
INTERRUPTIBLE LOAD PROGRAMMES IN THE NATIONAL
ELECTRICITY MARKET OF SINGAPORE**

CONSULTATION PAPER

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1 Background

- 1.1 The Energy Market Authority (“EMA”) supports participation from electricity consumers in the Demand Response (“DR”) and Interruptible Load (“IL”) programmes to increase system flexibility and enhance grid resilience. EMA has been facilitating the entry of DR/IL capacity into the Singapore Wholesale Electricity Market. Since the commencement of a DR/IL sandbox¹ from January 2023, the registered DR/IL capacity has increased to more than 100MW.
- 1.2 With system peak demand forecasted to increase at a compounded annual growth rate of up to 6.5% over the next five years and increasing domestic solar penetration, these programmes play an increasingly important role in balancing electricity demand and supply.

2 Enabling Load Facilities with EGs to participate in the DR/IL Programmes

- 2.1 EMA has identified that some embedded generation facilities² (“EGs”) could participate in DR/IL. Such facilities could reduce their load drawn from the grid in times of system need by activating the EGs for their internal consumption without direct load curtailment.
- 2.2 However, this is currently constrained by market rules: EGs with a nameplate capacity of 1MW and above are required to register with the Energy Market Company (“EMC”) as a generation facility (e.g. as a Generation Settlement Facility (“GSF”) or Generation Registered Facility (“GRF”) depending on the name-plate capacity). As such, load facilities with these EGs are unable to register concurrently with EMC as a Load Registered Facility (“LRF”) to participate in DR/IL programmes. The market registration requirements and the possibility for EGs to participate in DR/IL presently are shown in **Table 1**.

Table 1: Current DR/IL participation for EGs within load facilities connected to and in parallel with the transmission system.

S/N	EG capacity	DR/IL participation eligibility
1	<1MW	No requirement for Facility Registration. <u>Can apply to participate in DR/IL.</u>
2	1MW- less than 10MW	Requires Facility Registration as a generator (e.g. GSF) with EMC or registered under the

¹ See <https://www.ema.gov.sg/our-energy-story/energy-demand/non-residential-consumers> for more information.

² EGs refer to facilities with onsite generation and supply of electricity primarily for internal loads. Such EG facilities could include but are not limited to Battery Energy Storage Systems. See <https://www.ema.gov.sg/content/dam/corporate/licences/content-files/EMA-Industry-Licences-Info-Guide-for-Embedded-Generation.pdf.coredownload.pdf> for more info

		Enhanced Central Intermediary Scheme administered by SP Services. <u>Cannot participate in DR/IL.</u>
3	≥ 10MW	Requires GRF Facility Registration with EMC. <u>Cannot participate in DR/IL.</u>

2.3 EMA proposes allowing EGs with capacity of 1MW or greater and less than 10MW within load facilities (i.e. S/N 2 in **Table 1**) to participate in DR/IL, subject to the following conditions:

2.3.1 The load facility tagged to the EG is to be registered as a LRF to provide DR/IL with EMC, for a minimum of 2 years. This ensures that the load facilities fulfil the policy intent of delivering these benefits to the system.

2.3.2 The EGs within the load facilities are to be non-exporting, as EGs participating in DR/IL will be required to solely serve an internal load.

2.3.3 The EGs within the load facilities are not to be registered as GRF, which have additional requirements to fulfil for system stability and reliability.

2.3.4 Intermittent generation sources such as solar generation sources would not be eligible for DR/IL participation as they are not dispatchable.

2.3.5 The EGs will pay their fair share of market charges in accordance with the causer-pay principle, including any applicable reserves, regulation and administrative fees in accordance with Market Rules. If required, alternative methodologies (such as an appropriate generation profile) may be developed for the collection of relevant charges.

2.4 The proposed change for load facilities with EGs participating in DR/IL and the corresponding requirements are summarised in **Table 2**.

Table 2: Proposed change and requirements for load facilities with EGs participating in the DR/IL programmes

Proposed change
<ul style="list-style-type: none"> EGs within load facilities that are <u>non-exporting, non-intermittent and not registered as GRF</u> will be allowed to participate in DR/IL programmes.
Key Requirements
<ul style="list-style-type: none"> The load facility tagged to the EG are to be registered as a LRF to provide DR/IL with EMC, for a minimum of <u>2 years</u>. Such EGs will pay their fair share of market charges in accordance with the causer-pay principle, including any applicable reserves, regulation and administrative fees in accordance with Market Rules, and based on potential alternative methodologies if necessary.

3 Request for Comments and Feedback

3.1 EMA invites written comments and feedback on Section 2 of the consultation paper to the EMA Industry Ecosystem Development Department at the following email address:

IEDD_Demand@ema.gov.sg

3.2 The closing date for feedback submissions is 8 March 2024, 2359 hrs Singapore time. Anonymous and/or late submissions will not be considered.

3.3 EMA will acknowledge receipt of each submission via email. If you did not receive an acknowledgement of your submission within two business days, please contact IEDD_Demand@ema.gov.sg.

3.4 EMA reserves the right to make public all or parts of any written submissions made in response to this consultation paper and to disclose the identity of the source. Any part of the submission, which is considered by respondents to be confidential, should be clearly marked. EMA will take this into account regarding the disclosure of information submitted. EMA may also approach respondents for clarification while the consultation is ongoing.