

## MEDIA RELEASE

21 October 2024

### **New Initiatives to Harness Demand Flexibility Potential in Singapore**

EMA will introduce three new initiatives to better harness “demand flexibility” — the ability of consumers to adjust electricity consumption in response to the needs of the power system. These initiatives focus on enhancing the Demand Response (DR) programme and enable Battery Energy Storage Systems (BESS) and electric vehicle (EV) charging stations to participate in the programme.

2 The DR programme plays an important role in the power system by helping to manage and reduce overall system cost. Between 2023 and mid-2024, the DR programme has resulted in over \$700 million in savings for electricity buyers in the Singapore Wholesale Electricity Market, such as electricity retailers, through reduced wholesale prices. More details on the DR programme are appended in **Annex A**.

3 According to a study commissioned by EMA, there is over 400MW of demand flexibility potential that is untapped in Singapore. Commercial sectors, such as those reliant on heating, ventilation, and air-conditioning, show potential for load shifting, while certain industrial processes, like those involving gas production, offer opportunities for rescheduling operations to off-peak times.

4 Through the new initiatives, EMA encourages business consumers to participate in the DR programme and voluntarily reduce their electricity usage in response to wholesale electricity prices during peak demand periods. In return, they receive a share of the savings from the reduction in wholesale electricity prices.

5 Mr. Puah Kok Keong, Chief Executive of EMA said, "Our new initiatives are a key step in harnessing more demand flexibility. By enabling business consumers more opportunities to play an active role in demand response, we can strengthen the resiliency of power system."

#### Enhancing the Demand Response (DR) programme

6 EMA launched a two-year DR sandbox in 2023 to encourage participation in the DR programme. The sandbox more than doubled the registered DR capacity from 46MW to 103MW. Businesses supported the enhancements that were introduced under the sandbox. When the sandbox ends in December 2024, EMA will keep these enhancements under the regular DR programme. These include (i) a lowered compliance threshold to recognise the nature of business operations, and (ii) two penalty waivers for non-compliance within the first six months of DR registration to allow participants to gain familiarity. Details are in EMA's [Final Determination Paper](#).

#### Enabling Battery Energy Storage Systems (BESS) to participate in the DR programme

7 Businesses with BESS with nameplate rating below 10MW can apply to EMA by 28 February 2025 to participate in the DR programme. With BESS, businesses can potentially shift their electricity consumption more flexibly from peak to non-peak periods and participate more frequently in DR. EMA has published the [Final Determination Paper](#) on the regulatory framework.

#### Regulatory sandbox for EV charging stations to participate in DR

8 By aggregating charging stations across different locations and/or tapping on resources such as BESS, EV Charging Operators can respond to DR events by adjusting charging speeds. EMA is collaborating with ComfortDelGro via a regulatory sandbox to pilot the participation of the latter's EV charging stations in the DR programme. This will explore how ComfortDelGro's network of nearly 1,000 charging stations can adjust charging volumes during DR events, helping to balance demand and supply in the electricity grid. EMA welcomes more collaborations with interested stakeholders on how EVs can serve as flexible assets to enhance our energy resilience.

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### **About the Energy Market Authority**

The Energy Market Authority (EMA) is a statutory board under the Singapore Ministry of Trade and Industry. Through our work, we seek to build a clean energy future that

is resilient, sustainable, and competitive. We aim to ensure a reliable and secure energy supply, promote effective competition in the energy market and develop a dynamic energy sector in Singapore. Visit [www.ema.gov.sg](http://www.ema.gov.sg) for more information.

## Demand Response Programme

Demand Response (DR) enables contestable consumers to reduce their electricity demand voluntarily when wholesale electricity prices are high, in exchange for a share in the system-wide benefits. Contestable consumers are consumers who purchase their electricity from a retailer or from the wholesale electricity market, instead of buying electricity from SP Services at the regulated tariff.

### 1. Benefits of the DR programme:

DR brings about several benefits. These include:

- **Reducing the wholesale electricity prices** during peak periods as more expensive generation units need not be scheduled to run.
- **Promoting more efficient power generation investments** as DR is expected to reduce 'peaks' in electricity consumption where wholesale prices are typically higher. This in turn reduces the need to start up less efficient power plants that are only run infrequently to meet 'peak' demand. In the long term, DR will lead to more efficient infrastructure investments to meet demand growth.
- **Providing an option for consumers to be rewarded for participating in the electricity market**, through demand side participation and managing their electricity usage in response to price signals. When the DR participant bids into the Singapore Wholesale Electricity Market (SWEM) and is activated for DR, they will receive an incentive payment for each successful activation.

### 2. Features of the DR programme:

- **Eligibility**

Contestable consumers can participate in the DR if they can (i) offer to reduce their electricity consumption by at least 0.1 MW and (ii) can respond on short notice (about 3 mins).

- **Demand side bidding**

DR participants can submit demand bids, indicating their willingness to reduce their electricity demand at different price points. This is similar to how power generation companies offer their capacity into the market.

- **Programme framework based on Final Determination Paper on Regulatory Enhancements to the DR Programme**

1. Compliance Threshold: EMA will retain the 80% compliance threshold introduced under the DR sandbox arrangement. Participants delivering between 80% but less than 100% of what they promised will not receive any incentive payment. Those who deliver less than 80% will incur a penalty. Previously, the compliance threshold was set at 95%.

2. Concessions:

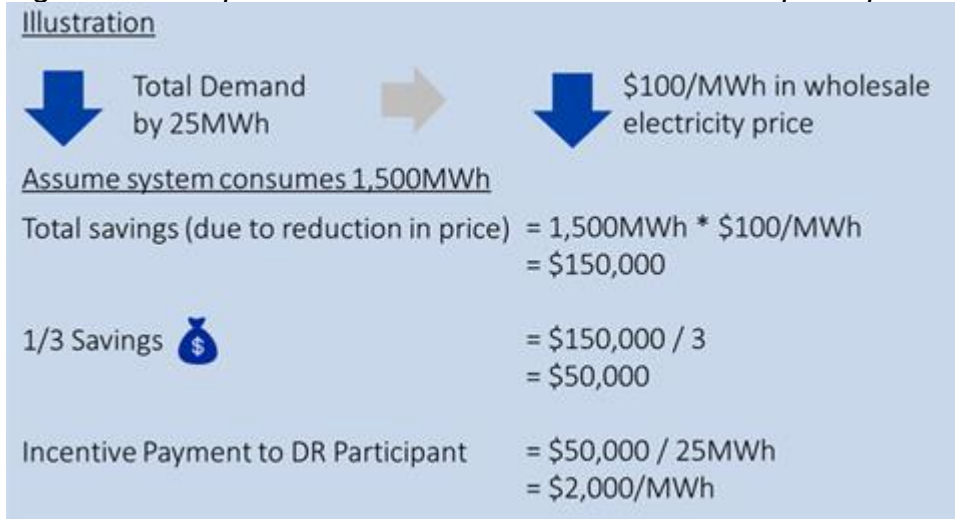
(a) New DR participants will enjoy a trial period of up to six months where they enjoy two penalty waivers for non-compliance for their newly registered load facility.

(b) Existing DR participants that join after the DR sandbox ends but before the regular DR parameters are rolled out can keep their remaining unused concessions.

- **Incentive payments to DR providers**

DR participants who are activated and deliver 100% of what they had committed will, as an incentive, receive one-third of the savings arising from the reduction in electricity prices due to DR. This ensures that most of the benefits are accrued to the electricity buyers in the SWEM, such as electricity retailers, while providing a fair return to DR participants. The incentive payment will vary based on market conditions and is capped at \$4,500/MWh, which is the existing ceiling for wholesale electricity prices. An example of the incentive payment is shown in Figure 1.

Figure 1. Example of how consumers can benefit from participate in DR



▪ **Key Equipment, Systems and Processes with Demand Flexibility Potential**

The typical equipment, systems and processes which can participate in DR is shown in Figure 2. below.

Figure 2. Typical loads for demand response

<b>Production Equipment</b>	<b>High Voltage Air Conditioning (HVAC), Chillers &amp; Pumps</b>	<b>NEW! Battery Energy Storage System (BESS) with nameplate rating of 1MW or more but below 10MW</b>	<b>NEW! Electric Vehicle Chargers</b>
Consumers with flexible production processes can choose to temporarily switch off specific non-critical production equipment and shift their demand to a later period.	Consumers can reduce energy consumption of specific electrical items such as HVAC, compressors, chillers or pumps for short periods to shave their peak demand.	Consumers can reduce the electricity that they draw from the grid by running on-site BESS to minimise disruptions to their operations	Consumers can adjust the charging power of individual stations or groups of chargers based on real-time data such as charging status, battery levels, and vehicle collection times.