

Introducing Demand Response to Enhance Competition in the National Electricity Market of Singapore

The Energy Market Authority (EMA) has introduced a Demand Response programme to enhance competition in the National Electricity Market of Singapore (NEMS). This factsheet explains the benefits and key features of the programme.

What is Demand Response?

Demand Response (DR) enables contestable consumers to reduce their electricity demand voluntarily, in exchange for a share in the system-wide benefits as a result of their actions. Such reductions typically take place when wholesale prices in the NEMS are high or when additional resources can improve system reliability. While DR is a new feature in Singapore, it has been successfully implemented in various forms in jurisdictions such as Australia, New Zealand and the United States.

What are the benefits of the Demand Response Programme?

The DR programme in the NEMS brings about several benefits. These include:

- **Providing an additional option for consumers to participate in the NEMS** through demand side bidding and to manage their electricity usage in response to price signals. This is aligned with the EMA's overall objective of promoting greater consumer choice as part of the competitive market framework.
- **Reducing the wholesale electricity prices** during peak periods as more expensive generation units need not be scheduled to run.
- **Promoting more efficient investments in the NEMS** as DR is expected to reduce 'peaks' in electricity consumption where prices are typically higher. In the long term, this reduces the need to invest in expensive generation units that are only run infrequently to meet 'peak' demand.
- **Providing an additional resource to improve system reliability** as consumers reduce consumption in response to high prices during periods when supply condition is tight (e.g. due to unplanned outages or gas disruptions).

What are the features of the Demand Response programme?

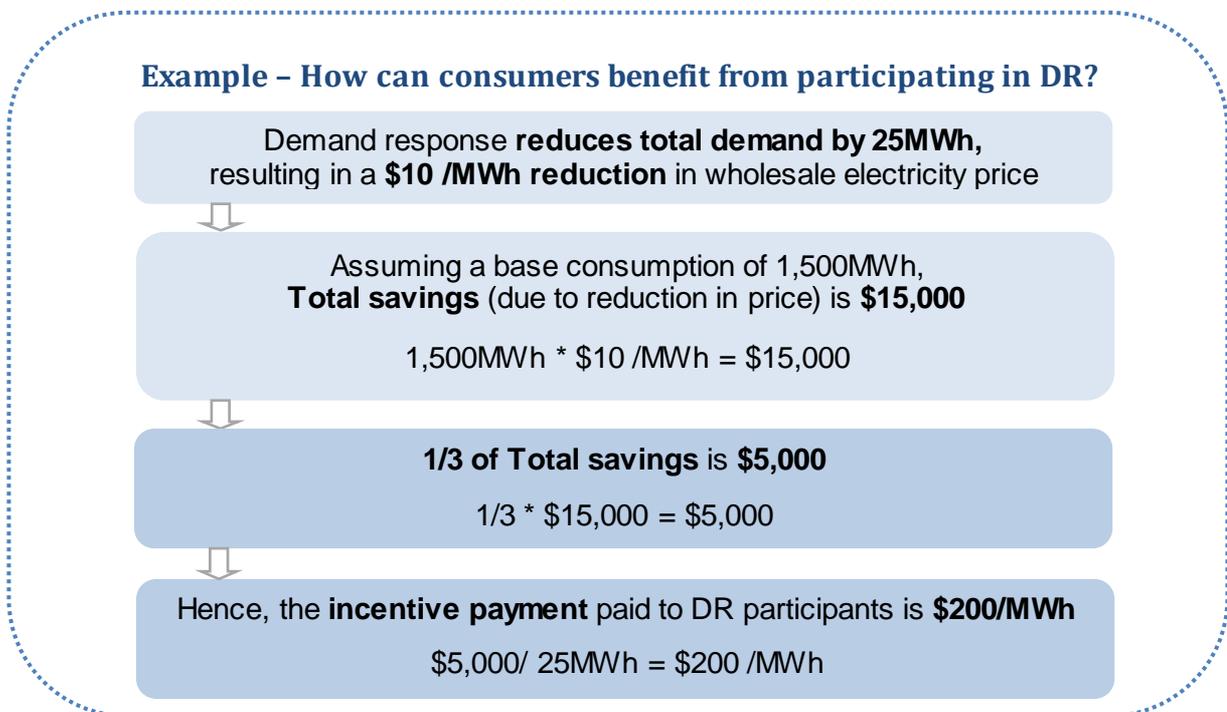
- **Eligibility**
If you are a contestable consumer and can offer to reduce your electricity consumption, you can participate in the DR programme through your electricity retailer or a Demand Response Aggregator. Contestable consumers who can offer to reduce their electricity consumption by at least 0.1 MW can also participate directly in the NEMS.
- **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 generators offer their capacity into the market.

- **Incentive payments to DR providers**

DR providers will receive one-third of the savings due to the reduction in electricity prices as incentive payments. This ensures that most of the benefits are accrued to the broader consumer base, while providing a fair return to DR participants. The incentive payment will be up to \$4,500/MWh, which is the existing ceiling for wholesale electricity prices. The typical loads which participate in DR and a numerical example of the incentive payment is shown in Figure 1.

Figure 1. Typical Loads for demand response and numerical example of incentive payment

Production Equipment	High Voltage Air Conditioning (HVAC), Chillers & Pumps	On-site Back-up Generation
Consumers with flexible production processes can choose to temporarily switch off specific non-critical production equipment.	Consumers can reduce energy consumption of specific electrical items such as HVAC, compressors, chillers or pumps for short periods.	Consumers can reduce their demand by running on-site back-up generators for short periods.



Additional Information

Detailed information on the DR programme can be found in the EMA’s Final Determination Paper on *“Implementing Demand Response Programme in the National Electricity Market of Singapore,”* dated 28 Oct 2013.

If you are interested, please contact your electricity retailer or a DR Aggregator for more information and to discuss how loads in your facility can participate in the DR programme.
