



The Demand Response Programme is a crucial step in advancing Singapore toward a green city which is supported by Smart Grids. It has a high potential to bring market wide benefits which includes improving electricity or energy efficiency in the market, saving cost by reducing the need to build capacity to cater for peak demand, improving system reliability of the electricity supply and network. In this joint project between the Smart Grid Department and the Signal Processing Department, we recognise that the Demand-side Management (DSM) program is a main supporter for Smart Grid deployment in Singapore.

### Features

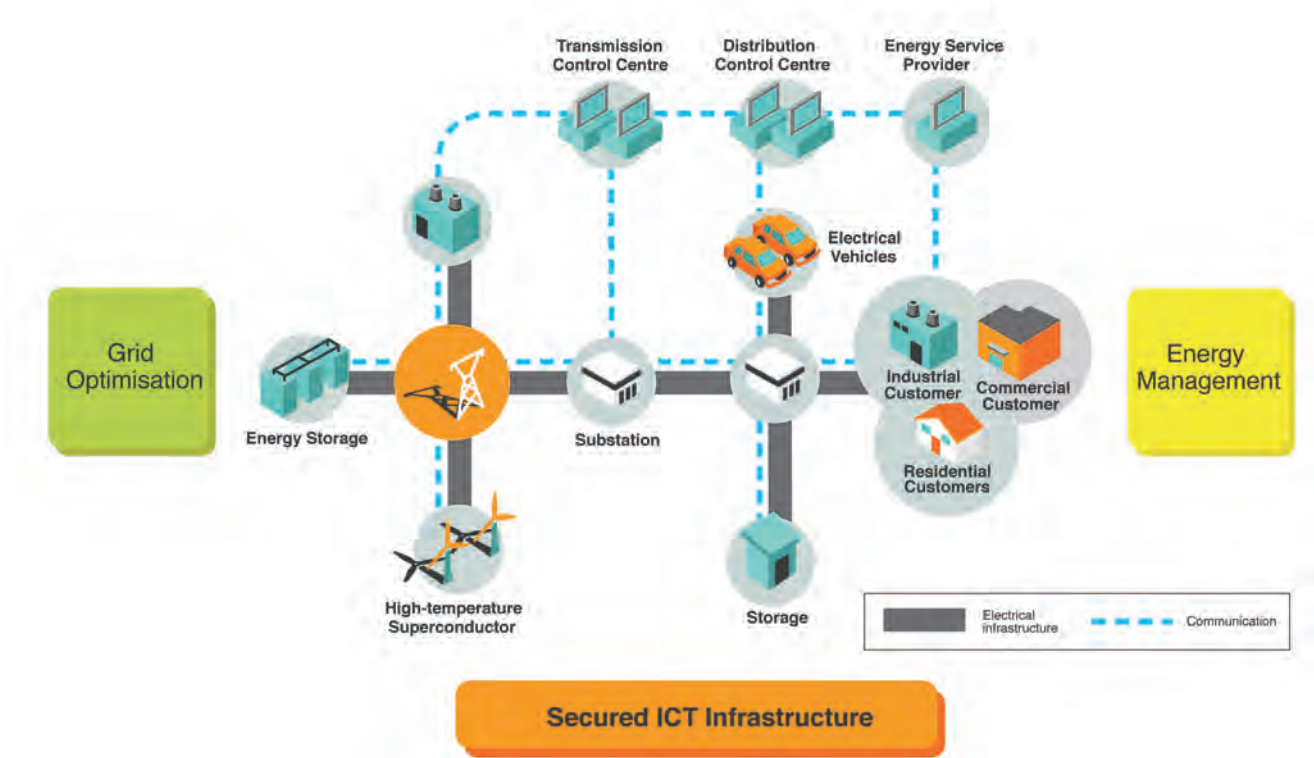
Demand-side Management can provide a coordinated decision making process on demand response, together with the integration of renewable energy generation (such as wind or solar energy), and energy storage, which are essential components for implementing the Demand Response Programme.

At I<sup>2</sup>R we use multi-agent simulation to demonstrate the Demand-side Management (DSM) algorithms to manage the time pattern and magnitude of the load or electricity demand. The objective is to encourage the customers or demand-side users to participate actively in the load shedding and load shifting process through innovative pricing or incentive schemes.

For this demo, the demand-side factors such as total load or peak load consumption are used to control the demand response.

## Applications

- Demand response
- Demand-side management in smart grids
- Building energy management



## Benefits

- Peak load reduction
- Reduce peak-to-average ratio of total energy consumption
- Cost saving
- Improvement in utility or welfare of electricity users



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