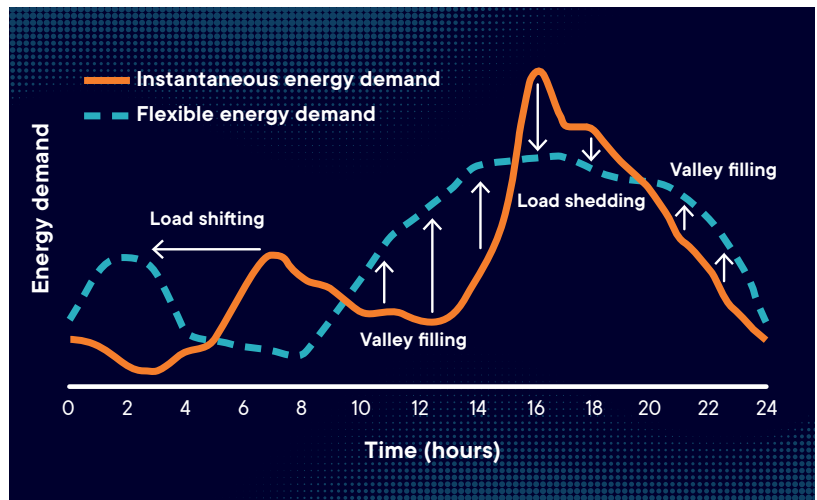


# Roadmap for Consumer Devices to Participate in Demand Flexibility

EDNA11

The 4E Electronic Devices and Networks Annex (EDNA) provides policy guidance to members and other governments aimed at improving the energy efficiency of *connected devices* and the systems in which they operate. EDNA is focused on the increased energy consumption that results from devices becoming connected to the internet, and on the optimal operation of *systems of devices* to save energy.



This policy brief summarises the key findings of the EDNA report *Roadmap for Consumer Devices to Participate in Demand Flexibility*. Demand flexibility is the ultimate evolution of demand response. Demand flexible loads can be shed, shifted and modulated in response to the real-time needs of the electricity system. The EDNA report examines the issues and sets out a guide for the development of country roadmaps for consumer device demand flexibility.

## Observations for Policy Makers

- The overall efficiency of the electricity system can be greatly improved by demand flexible consumer devices. For example, they can help to support the variable nature of energy supplied from sources such as wind and solar.
- Although initial steps have been taken in some countries towards demand flexibility, much progress still needs to be made.
- For consumer devices to become demand flexible, a number of steps are required:



Markets need to be created for demand flexibility, such that energy utilities will pay for this service.



'Aggregators' need to have the ability to bundle thousands of consumer devices and on-sell their flexibility to energy utilities.



Incentives need to be provided to consumers so that they allow their devices to participate (e.g. rebates, direct financial payments, provision of free equipment, etc.)



Communications protocols need to be standardised, so that large numbers of devices can respond to incoming requests for flexibility.



Consumer devices need to be easy to install, configure and operate, and consumers need to have the ability to override autonomous device functions.



Communications and data need to be secure and consumer privacy needs to be assured.

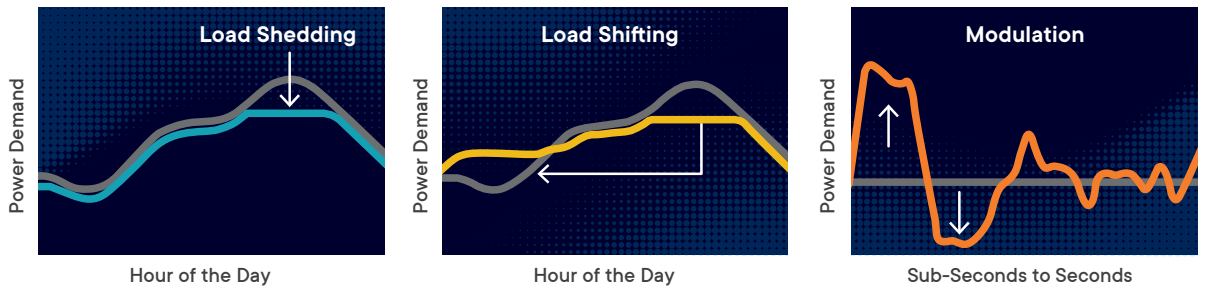
### MORE INFORMATION

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The EDNA report and further information is available from the [EDNA website](#) and by contacting the EDNA operating agent at [steve@beletich.com.au](mailto:steve@beletich.com.au)

## Key Findings

### True demand flexibility provides 3 main services



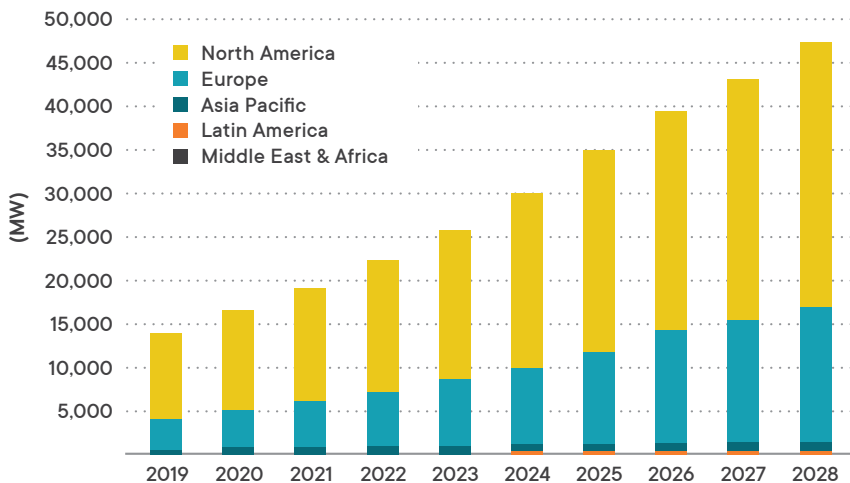
Demand flexibility can also provide ancillary services such as frequency regulation and voltage control

### Demand flexibility is the ultimate evolution of demand response

In the early 1990s, demand response began with simple 1-way switches. Advances in communications and controls have allowed demand response to evolve into an autonomous operation, able to dynamically change loads in response to varying electricity prices and the needs of the grid.



Growing global capacity for residential demand response



### Countries are at different stages of readiness for demand flexibility

Countries are currently at different stages of readiness for demand flexibility, ranging from those having only basic demand response programs, to countries with fully-fledged demand response aggregation markets and pilot programs for demand flexibility.

### Priority consumer devices

The consumer devices with the most potential to aid demand flexibility are those with higher energy consumption, such as air conditioners, water heaters, energy storage devices, electric vehicle chargers and large appliances.