



RELIABLE
AND
SUSTAINABLE
POWER GRIDS

Working group
FLEXILWATTS
Demand for flexibility

1. What is “GO15. Reliable and Sustainable Power Grids”?

“GO15. Reliable and Sustainable Power Grids” is a voluntary initiative of the world's 16 largest Power Grid Operators, with the aim of leading the transition to the future power grid.

2. What is Demand Side Management (DSM)?

The objective of DSM (Demand Side Management) is to maximize the efficiency of the electric grid by enabling end-users to base usage decisions not only on their value of electricity but also on actual grid conditions.

3. Why a Flexilwatts working group focus on DSM?

Under the future energy model, demand response has the potential to play a key role providing flexibility for system operation.

A worldwide TSO (Transmission System Operators) network allows sharing knowledge and best practices regarding the development of DSM measures.



4. Which operation challenges is DSM addressing?

DSM can face relevant operational challenges that the different countries are currently experiencing, regarding efficiency, environmental and technical issues.

Main operational challenges:

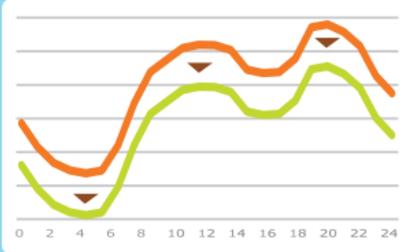
- Reduction of load shape sharpening.
- Integration of low carbon technologies.
- Balancing supply and demand.
- Integration of new demand types and profiles.
- Increasing competitiveness in the electric system.
- Facing emergency situations.
- Increasing efficiency in the system operation.
- Supporting an active role for consumers.



5. Which are the main measures on DSM?

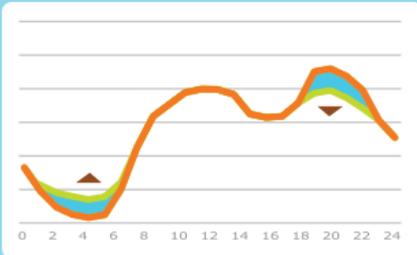
DSM measures can be classified into four groups depending on the effect over the load shape.

1 Reduction in consumption



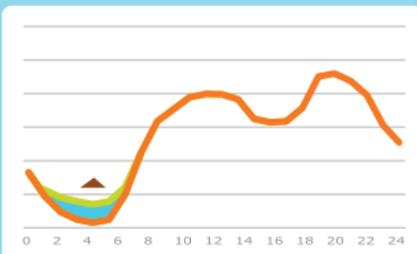
- Improving efficiency of equipment and processes.
- Energy saving awareness.

2 Shifting consumption from peak hours to valley hours



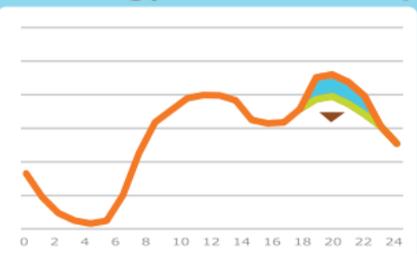
- Time of use tariffs.
- Response to electricity market prices.

3 Filling valleys



- Pumping storage station.
- Energy storage technologies.
- Charging of electric vehicles.

4 Reduction in consumption during peak hours of the system



- Interruptibility service.
- Automatic load management.

6. Which are the key drivers for the implementation of DSM measures?

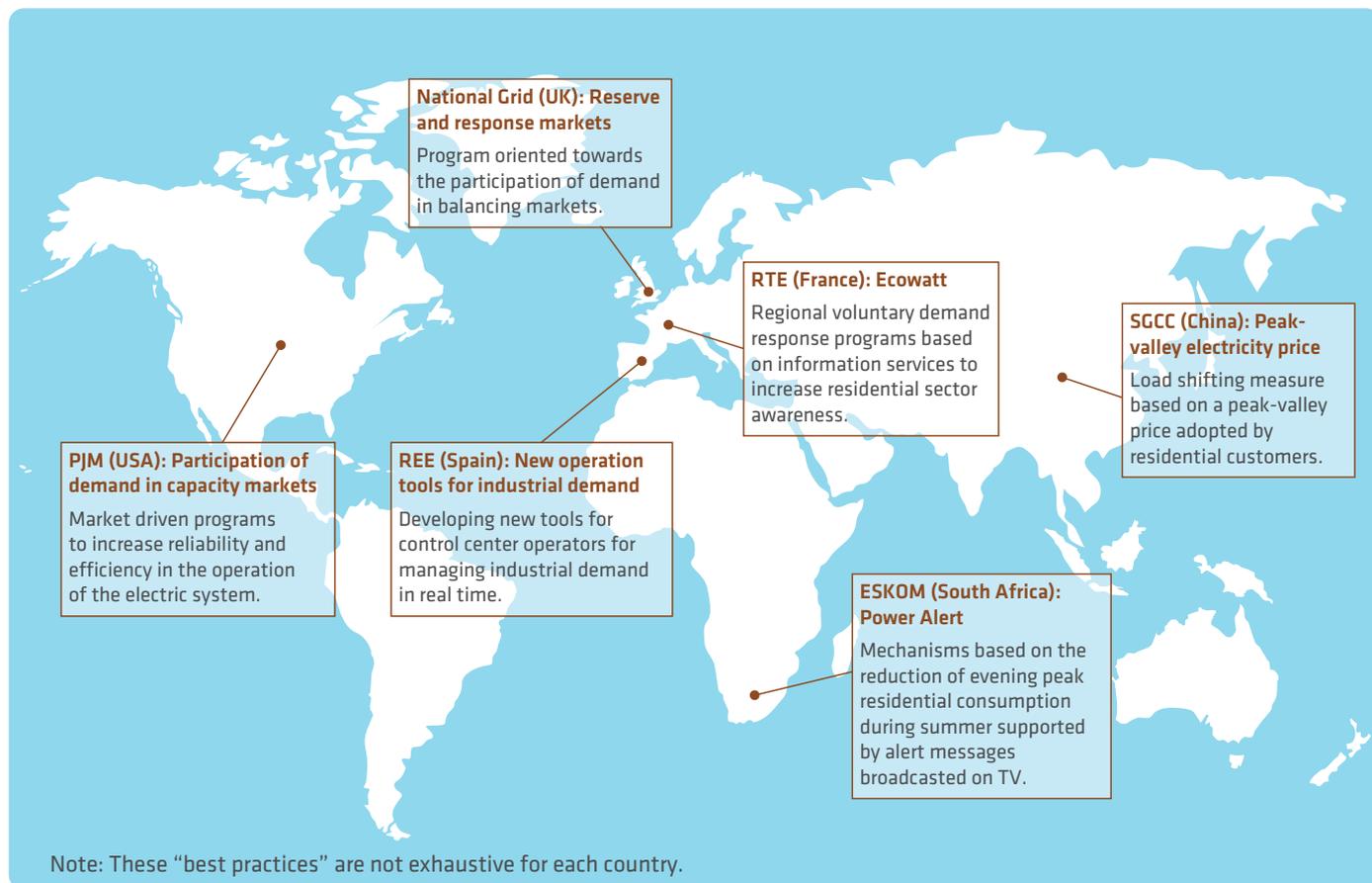
The core elements for the successful implementation of DSM measures are sharing information with consumers and third parties involved, price signals, automatic devices and the promotion of a regulatory framework.

7. Where to find new demand response potential?

Being industrial demand measures already developed, new sources of demand response are foreseen to be created mainly in the residential and commercial sectors.

Consumer engagement is the cornerstone of DSM in the future, with the development of Smart Grids, massive penetration of low carbon technologies such as electric vehicles and energy efficient buildings.

8. Best DSM practices around the world



9

Key outputs

1. DSM is a critical tool to face relevant operational challenges from grid operators, as well as to play a key role in the transition to the future energy model.
2. Traditional DSM measures have been focused on industrial response, with lower impact on other sectors with a higher number of consumers such as the residential and service sectors.
3. In the following decades, new DSM measures are expected to be focused on low consumption sectors taking advantage of the new role of consumers, with higher involvement and knowledge of the electric system.
4. New DSM measures will be oriented towards Smart Grids development, the massive penetration of electric vehicles, storage capacity and the integration of intermittent renewable generation and distributed generation.

10. Working group Flexilwatts: Participants



Australia / www.aemo.com.au



China / www.eng.csg.cn



South Africa / www.eskom.co.za



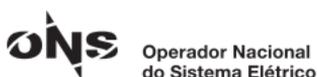
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