

IEA DSM TASK VIII Demand Side Bidding

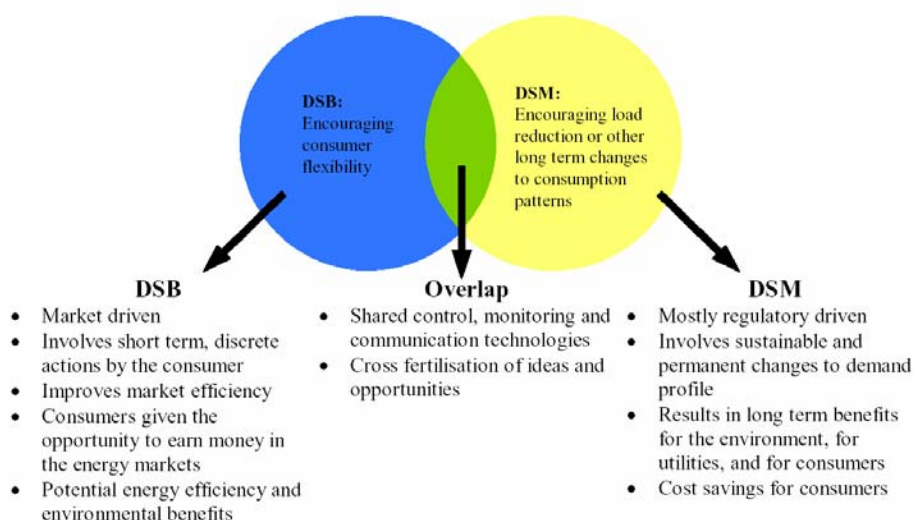


What Is DSB?

Demand Side Bidding (DSB) is a mechanism that enables consumers to actively participate in electricity trading, by offering to undertake changes to their normal pattern of consumption.

Is DSB Different From DSM?

Yes. Although DSM (Demand Side Management) and DSB are very different, they are never-the-less closely related. For example, measures for DSM can often be used for DSB, and vice-versa. The differences and similarities between DSB and DSM are summarised in the diagram below.



What Are The Implications Of DSB?

Rescheduling of loads, or agreed load reductions, can help maintain the balance between electricity supply and demand, and maintain the quality and security of supply. This could enable electricity prices to be reduced in the short term, and the number of generators and size of networks to be decreased in the long term. This may result in improved energy efficiency and reduced greenhouse gas emissions.

How Do Consumers Participate?

Consumers can participate in DSB individually or as a group, with bidding undertaken directly with the market or through an electricity retailer, municipality or trader acting as an 'aggregator' of numerous bids.

Which Consumers Can Participate In DSB?

Any consumer can participate in DSB so long as they have the flexibility to make changes to their normal electricity demand profile and install the necessary control and monitoring technology to execute bids and demonstrate bid delivery.

How Does The Consumer Benefit?

Consumers gain a financial reward, via a direct payment for the electricity they did not consume at an agreed time, or a reduced tariff or participation payment. Consumers may also benefit through improved energy efficiency in some situations.

DSB For Balancing Purposes

Unlike most other tradable commodities, the supply and demand of electricity needs to be kept in balance at all times. Generators that are capable of increasing their output at short notice are usually relied upon when operational disturbances and deviations from the forecasts occur.

In Practice In Norway

In Norway, such imbalances are dealt with on the Regulation Power Market. However, because there is insufficient capacity from the generators to meet the System Operator's needs, consumers have been actively encouraged to participate by

offering demand reductions. There are currently agreements on options for 1745 MW from both generators (1075 MW) and consumers (670 MW) that satisfy the System Operator's requirements for fast response. Payments to the participants for this capacity vary depending upon the location.

DSB For Frequency Response

A fall in supply frequency must be corrected instantly. Normally this is achieved by having reserve generators in a state of readiness. However, consumers capable of instantaneous shut-down can also provide the same frequency correction.

In Practice In The UK

In the UK, Yorkshire Electricity developed the first demand side frequency response service using cement companies. Now, thirteen sites

offer a maximum instantaneous load reduction of 110MW. Activities such as cement production are ideal for frequency response. They consume large, predictable and steady loads and the process of crushing and milling can easily be interrupted and restarted.

IEA DSM Work & Results

Task VIII evaluated and promoted Demand Side Bidding (DSB) as a means of improving the efficiency of the operation of the electricity supply chain. This aim of the work was to evaluate the characteristics, strengths and weaknesses of existing DSB schemes and creating guidelines for the development and enhancement of new schemes.

The Task has provided both an overview of the current status of Demand-Side Bidding and practical advice on how to implement DSB. However, DSB, like competitive electricity markets themselves, is an area that is constantly evolving and many changes can be expected over the coming years.

Results

The results and findings of Task VIII were used to produce the report, *A Practical Guide to DSB*. The Guide is divided into two sections. The first provides background information about the concept of DSB and why it is important in the operation of competitive electricity markets. This includes a number of important definitions and a discussion of the drivers for DSB. The second section presents a step-by-step guide to the implementation of DSB, covering such issues as: understanding the needs of the DSB buyer; the suitability of consumers to meet these needs; the control, monitoring and communication technologies required; and how to make a business case for each participant. Each step is illustrated by worked examples. Further examples are included at the end of the Guide to provide a wide coverage of DSB applications for both Network Stability and Planned Balancing.

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