



HOW CAN INDUSTRY MEASURE THE SOCIAL AND COMMERCIAL BENEFITS OF A DR DRIVEN BUSINESS MODEL?

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Definition of Demand Response: *Changes in electric usage by end-consumers from their current consumption patterns in response to changes in the price of electricity over time, or to incentive payments designed to adjust electricity usage in response to wholesale market prices or when system reliability is jeopardized.*

Demand Response increases systems efficiency, bringing several important environmental and financial benefits within today's electricity markets. It substantially reduces the need for investment in peaking generation by shifting consumption away from peak hours. It acts as a cost effective GHG free balancing resource for wind and solar generation. Adding stability to the system, it lowers the need for coal and gas fired spinning reserves - power plants that run offline, burning fuel continuously, in order to be ready to supply power and short notices. It reduces wholesale energy costs by lowering the point at which the demand curve intersects the supply curve. And it can decrease the need for local network investments, as it can shift consumption away from peak hours in regions with tight network capacity. Demand response delivers these benefits through providing consumers; Residential, Commercial¹ or Industrial, with control signals and/or financial incentives to lower or adjust their consumption at strategic times. **In so doing Demand Response offers end consumers the opportunity to benefit directly from the Smart Grid.**

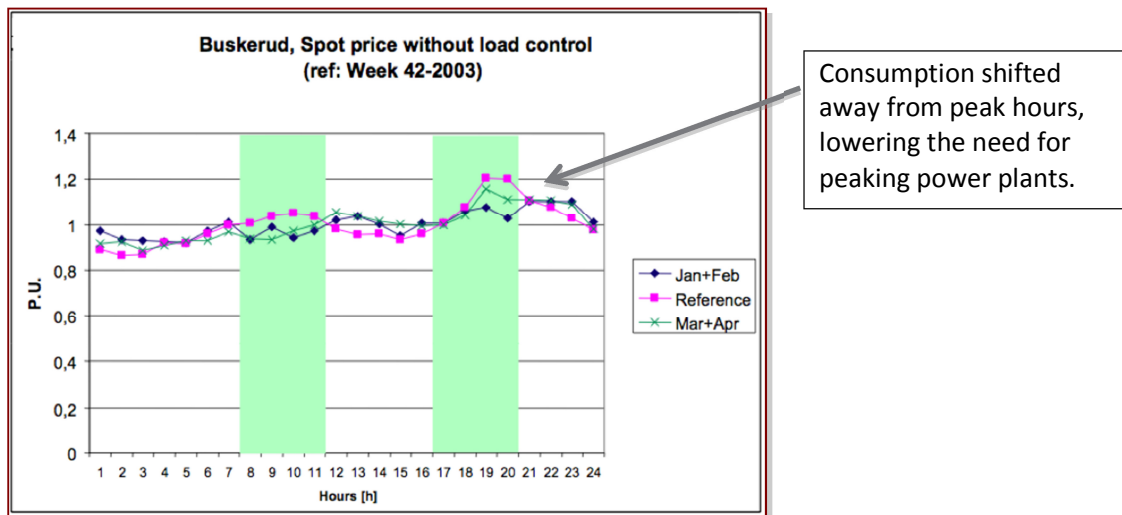


Figure 1: The influence of increased electricity prices on peak consumption during the Norwegian Spot Price Pilot. Source: Norway: EFFLOCOM

¹ By the term Commercial is meant all buildings and businesses which are not directly industrial or residential; in other words, municipal buildings, SMEs, businesses such as hotels, office spaces, etc.



The majority of revenue from DR programs flows to end users and **stays** within the local communities and builds local businesses. It is unknown how many billions in revenue that European businesses and households would gain directly in the form of payments, for shifting consumption and indirectly through lowered investment costs. However, the Demand Response market in the USA is now generating approximately **6 billion dollars per year** in direct revenues for local businesses, industry and households **as well as** enabling avoided investment costs. At approximately 3.500 TWh per year, the overall EU electricity market is nearly the same size as the US market, at about 3.800 TWh per year.

Some regions in the US, such as PJM², are already cutting 7% of their seasonal peaks. Though further study is needed, a rough estimate of current peak clipping capabilities through Demand Response in Europe ranges between 6% and 11% depending on the profile of commercial/industrial and residential resources available in each market³. This would mean a corresponding number fossil fuel burning power plants could be removed from the system.

The European Commission has stated its strong support for the implementation of Demand Response Programs throughout Europe as an important strategic step in achieving its 20/20/20 targets. Yet despite continued high-level efforts on the part of policy makers and millions spent on pilot projects, the development of demand response programs in Member States has been slow to non-existent. This has raised questions as to the viability of demand response development overall in Europe. It has been unclear, why even programs with highly positive cost benefit ratios, including Commercial Industrial Demand Response (C&I DR), still have not managed to establish themselves within most European markets.

In order to better understand why even programs that are clearly economically viable are not getting established, the SEDC asked its Members – utilities, aggregators and technology companies together having over 100 million customers and employing over 1 million people in energy and other fields – to provide us with a “snap shot” of the current regulatory and technological opportunities, barriers and enablers in their own markets influencing Demand Response development. The aim is to gain a better understanding of the realities of working with demand response in Europe today. As a Demand Side Coalition whose entire membership is made up of companies working with demand side programs around Europe, the SEDC was uniquely placed to perform this review.

Source: The Demand Response Snap Shot; The Reality For Demand Response Providers Working, SEDC Brussels, EU Parliament; Square de Meeus 37 – 4th Floor; Bruxelles 1000 Belgique, September 2011

² PJM: a wholesale electricity market and transmission grid operator originally covering Pennsylvania, New Jersey, and Maryland, but now including parts of 13 states and the District of Columbia.

³ This estimate assumes that the value of capacity is made transparent in the organized electricity markets and also that demand side resources have access to these markets. A market such as Denmark with little industry, small commercial sites and low electricity consumption in most homes may only reach a 5-6% reduction, however larger industrial economies such as Poland could probably shift closer to 13%. We have made an effort here to represent the conservative figures