

Added Value of Demand Response for a TSO

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Out of the various applications of Demand Response programs throughout the world, ELES, Slovenian TSO has been exploring an option to use this technique for one of the most valuable power resource, the power reserves or so called Ancillary services. Such development must be supported by investments into technologies that will enable Demand Response to operate in automated mode. Very short lead time of upto 15 minutes and relatively long activation time of several hours must be achieved in a strictly controllable and reliable manner.

With such approach, Demand response can be used not only for Nation-wide system balancing but also for cross border system balancing and congestion management. Demand response for congestion management could be tailored either to sub-area demand control redispatching or cross border demand control redispatching. Transmission System Operators can benefit from these applications in many core business processes. The first benefit is to improve their resources for secure operation of electricity grids. Besides this, TSOs by means of Automated Demand Response can transmit more electricity through existing electricity grid as today. TSOs can connect more consumers to low-cost power plants, accept more renewable energy sources into transmission grids and connect more energy storage facilities with renewables.

It is important to note that within the Electricity Power Systems of continental Europe and European Union all of the above Demand Response options can be seen as regular tools for everyday operation of electricity Systems and Markets. Therefore traditional business models of consumer involvement in Power System balancing that have been predominantly used for load curtailment in islanded pre system collapse emergency conditions can not be applied here. However after a successful rollout, Demand Response could be explored to replace the existing communication platform for pre system collapse emergency conditions and further enhancement to Voltage stability control.