
CEER Citizens' Q&A

Scoping of flexible response

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1 What is flexibility?

In recent years, power systems in Europe have increasingly shown short-term operational stress signs. The stress on the power system is caused by increased volatility of the net load and fluctuating generation. This has multiple causes, one being high penetration levels of intermittent electricity from renewable energy sources. Increasing flexibility is therefore crucial for an affordable and reliable operation of (future) power systems. It helps to integrate electricity from renewable energy sources through higher consumption of electricity when the sun is shining or the wind is blowing. And flexibility from both the generation- and demand-side has the ability to improve the efficiency of the electricity system and contribute to security of supply.

Flexibility can be described as the ability of the power system to adapt to the growing fluctuations of supply and demand while, at the same time, maintaining system reliability. Flexibility can be represented by a top-down approach, identifying the challenges at system level and the instruments (as market arrangements) to cope with those challenges. At the same time, flexibility can be described according to a bottom-up vision, at a more individual level (e.g. generator or consumer perspectives), to identify flexibility resources and their capabilities.

2 What does this paper propose for flexibility?

According to literature and practical experiences, electricity markets function more properly if consumers are not entirely disjoined from wholesale market prices. Improving opportunities to value demand side flexibility helps to overcome that (e.g. explicitly through the market or implicitly through retail prices).

3 How does it work?

Flexibility is valued at existing markets, and can also be useful for grid purposes. There is the possibility to utilise flexibility through the existing supplier, but also via independent aggregators. This depends on national market arrangements. Implicit valuation means using existing mechanisms, like differences in spot price markets without ex ante defined amounts. Explicit valuation means that there is an obligation to provide a certain amount of energy and to prove the delivery.

4 Why is this important for energy customers? What is the impact on energy customers?

Power system flexibility can benefit from the aggregation of consumption and/or generation units. Aggregation can support the identification of possible sources of flexibility (for instance embedded flexibility at the consumer/prosumer location), pooling of resources according to market standards. This means the consumer gets the possibility to participate more in the energy market, explicit through income (e.g. providing special services and getting remuneration from the user) or implicit through lowered energy prices.