Demand response and other distributed energy resources: what barriers are holding them back?

2023 ACER Market Monitoring Report

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Our energy transition is linked to further improving demand response ...
Flexibility is becoming the ‘name of the game’ …

The energy transition implies a surge in intermittent renewable energy sources and further electrification of energy needs, such as heating. As such, future flexibility needs will increase significantly.

Source: ACER-EEA report Flexibility solutions to support a decarbonised and secure EU electricity system, October 2023.
Negative prices: indicators ‘telling us something’

High/low wholesale prices send signals to generators (where to invest / when to produce), to traders (where to trade) and to consumers (if/when to consume).

Consistently low or high prices call for attention, possibly signalling the need for a more responsive power system.

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* Source: ACER calculation based on ENTSO-E data.
Note: One occurrence corresponds to one hour during which prices are negative.
Bringing challenges, yes, but also opportunities

Unlocking demand response and other distributed energy resources can bring significant opportunities.

Making the most out of your resources

- Many consumers will invest in electromobility, rooftop solar panels, batteries, etc. They can become **AN ACTIVE PART OF THE SOLUTION.**

**Sharp rise in electric car sales**

Source: European Environment Agency
Bringing challenges, yes, but also opportunities

Unlocking demand response and other distributed energy resources can bring significant opportunities:

**More cost-efficient market and system operation**
- Reducing peak prices
- Helping to balance the power system
- Preventing blackouts

**Savings for consumers**
- Electricity bill savings for **ALL CONSUMERS**, not just for those providing demand response

**More cost-efficient network development**
- Reducing the risk of grid overload
- Helping to solve network congestion as an alternative/complement to more costly grid build-out
Barriers come in many sizes and shapes …
This report presents regulatory barriers and restrictions in market design that merit further consideration and possible removal.
Barriers to demand response are often ‘hiding in plain sight’.

The sum of many small obstacles can add up to significant barriers, impeding system flexibility.

Source: ACER report: Demand response and other distributed energy resources: what barriers are holding them back?, December 2023.
Some examples of barriers holding back demand response ...
A proper legal framework is a precondition to unlock demand

Many Member States lack defining the main roles and responsibilities of new entrants and small actors in line with the Clean Energy Package.
Without price signals or incentives … why respond?

Consumers need proper price signals in their electricity bills to provide demand response.

Share of households (left) and non-households (right) with dynamic electricity price contracts, 2022

Consumers need to know they can benefit from demand response.

For consumers to become active they need both the relevant technical means (e.g. smart metering) and the incentives to do so (hence, the role of price signals and accessible informational tools).

*Source: https://europa.eu/eurobarometer/surveys/detail/3053; Eurobarometer.
Demand response can reduce network congestion costs

In general, network congestion is expected to further increase. This applies even more so for the distribution level as more and more rooftop solar, battery storage, electric vehicles etc. are connected.

How can system operators solve network congestion?

- Network reinforcement/expansion
- Re-dispatching of conventional power plants
- Curtailing renewable generation
- Interruptible tariffs
- ...
- Local markets for re-dispatching (still in an infancy stage)

Demand response and other distributed energy resources can play a role in local markets, at times being the most cost-efficient manner to solve network congestion. Member States need a transparent national process to determine whether local markets could be an appropriate response.

Retail price interventions can still preserve relevant price signalling for consumers if they are:

- **TARGETED**
- **TAILORED**
- **TEMPORARY**

The impact of retail price interventions and subsidies to certain technologies needs to be carefully considered. The risk is that, unless well designed, they could remove price signals to reduce/shift electricity demand and/or prevent distributed energy resources from accessing electricity markets.
A possible “To-Do list” to address barriers …
ACER’s main recommendations for governments, regulators and system operators to remove regulatory barriers and restrictions in the market design for demand response and other distributed energy resources

1. **Speed up** implementing regulatory changes to **remove persistent barriers**.

2. Set suitable **rules for new entrants**: clarify roles and responsibilities, define aggregation models, ensure data access, etc.

3. Ensure **open access** to all electricity markets and system operation services (balancing and congestion management services).

4. Provide the **technical means** and **incentives** by speeding up the rollout of smart meters, giving proper price signals in the electricity bills and raising consumer awareness.

5. Remove **restrictive requirements** to participate in balancing markets, capacity mechanisms and interruptibility schemes.

6. **Ensure that local markets for congestion management** have a chance to develop and mature. Define a transparent national process to assess when/where local markets may be implemented.

7. Facilitate new entrants’ **access to retail electricity markets**.

8. **Be targeted, tailored and temporary** when considering retail price interventions.

9. **Ensure sufficient granular data** on all restrictions to demand response and other distributed energy resources.

Want to learn more?

Check out our ACER Market Monitoring Report on Demand response and other distributed energy resources: what barriers are holding them back?
ACER: Role & governance

- **Supporting the integration of energy markets in the EU** (by common rules at EU level). Primarily directed towards transmission system operators and power exchanges.

- **Contributing to efficient trans-European energy infrastructure**, ensuring alignment with EU priorities.

- Monitoring the well-functioning and transparency of energy markets, *deterring market manipulation* and abusive behaviour.

- Where necessary, *coordinating cross-national regulatory action*.

- Governance: *Regulatory oversight is shared* with national regulators. *Decision-making* within ACER is collaborative and joint (formal decisions requiring 2/3 majority of national regulators). *Decentralised enforcement* at national level.