How to scale demand flexibility in Europe

Boosting demand side flexibility can lower consumer bills and provide grid stability. Ember and RAP identify the top policy actions to scale demand flexibility.

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Demand side flexibility is when consumers adjust their electricity use in response to financial incentives. They might be offered payments or benefit from a lower rate to consume less or even feed back to the grid when electricity is in short supply and expensive, or consume more at times of excess cheap renewable energy production.

Although the EU agreed on enabling rules for demand flexibility in 2019, national implementation has been slow and barriers remain. Now, momentum is building to boost demand flexibility. The European Commission plans to approve new technical standards in early 2026 (Network Code for Demand Response) and publish guidance on remuneration of flexibility in retail contracts. Member states will set national objectives for demand flexibility and storage by January 2027.

Three policy actions to scale household and business demand flexibility in Europe

1. Prioritise smart grids and smart meter rollout: In 8 EU countries, only a minority of households have a smart meter— from just 2% in Germany to 36% in Poland — whereas in others, such as France and Spain, coverage already exceeds 90%.

- It is important to financially incentivise grid operators to procure non-wire solutions to grid congestion, such as demand flexibility, as opposed to grid expansion alone.
- Swift smart meter rollout should be a priority: either by the distribution grid operator, or using dedicated measurement devices by third-parties (often linked to specific appliances like EV-chargers or heat pumps). Both are possible since the last electricity market reform. Regulations and hardware should enable metering at the asset level.

2. Encourage time-of-use network tariffs and innovative retail offerings: The structure of the electricity bill can reward consumers for shifting electricity use to times when renewable generation is high and prices are low. New types of dynamic or static time-of-use network charges and retail offerings are gaining traction.

- Static time-of-use tariffs (different rates for electricity for specific periods in a day) are well known. They are easy to understand for consumers and don't expose them to full-on wholesale price volatility. Yet, these pricing bands have become outdated—they were designed to shift use to nighttime, matching inflexible baseload power generation (such as nuclear). Updating these bands would let consumers take advantage of cheap daytime solar.
- Shifting policy costs (such as levies financing support for specific technologies and other non-electricity related subsidy schemes) to general taxation would lower fixed charges, support electrification and provide clearer price signals for flexibility.
- Trusted information platforms and tailored advice for consumers boost engagement with new retail offers. Dedicated smart tariffs for high-consumption devices like electric vehicles, heat pumps, air conditioners or water heaters could be considered.
- Disruption to people's lives and complexity from participation in demand flexibility should be minimised. For flexibility schemes to be genuinely inclusive, they must be accessible to lower-income and vulnerable households while also serving their energy needs, e.g. by prioritising them for energy efficiency and battery subsidies.

3. Eliminate barriers to automation and aggregation: The Clean Energy Package wants demand side flexibility on a level playing field with other resources.

- Ensuring that the operation of heating systems, industrial processes and EV charging and discharging can be automated allows customers to benefit from potential savings, via intermediaries like energy communities and aggregators.
- Avoid unreasonable new compensation requirements for suppliers—who may lose sales when consumers participate in flexibility aggregations and reduce their electricity usage. The current French practice of full compensation limits demand flexibility to incumbent suppliers. A mutual compensation model, like the UK one where compensation costs are shared amongst suppliers, encourages demand flexibility and participation of independent demand aggregators.
- Allowing demand side flexibility to participate without discrimination in all power markets, including the wholesale market, recognises demand flexibility as the proper energy resource it is. This is de-facto currently possible only in two EU countries, with the UK being more advanced than all EU countries.