

Developing flexibility: the new cornerstone of the grid

Concluding remarks and our key regulatory asks

This paper was initiated and developed by Eaton and the Renewable Energy Association (REA) with cross industry contributions including market data, insight and case studies.



Concluding remarks and our key regulatory asks

The authors of this report regard the following as some of the key changes needed to unlock the investment needed in flexibility services and technology. It is not meant to be exhaustive, but rather focus on the changes that can be made today and make an immediate positive impact.

End regulatory uncertainty, with clear medium-term targets and a roadmap for getting there

While the regulatory regime is in a state of flux, large-scale investment will be delayed. In Britain, France and Germany we see near-identical stories, where the business case for flexibility assets including battery storage is unclear.

Conversely, the Nordic market has benefited from a very stable and beneficial (see below) regulatory environment with a careful introduction of new rules.

Public intervention to create a deep and transparent flexibility market

For some time, the Nordic countries have enjoyed multiple and transparent markets mechanisms with different time horizons where all energy futures, physical products (Nord Pool Elspot and Elbas) and ancillary services are traded or procured openly. This ensures market access and facilitating data collection, thus contributing to the credibility of revenue projections.

There is also a low threshold to participate in Frequency Regulation (FR) tenders to help with grid stability, with a different price point per kW for small and large installations. This is important as it creates a liquid market for storage capacity behind-the-meter, where it is most efficient for the economy as it is where the largest number of services can be 'stacked' to enhance the economic value of those assets.

We would like to see this model replicated elsewhere – and ideally going further to foster a flexibility market with standard products, durations and futures. Otherwise, a balkanised system will mean that operators trying to source flexibility to firm variable renewable delivery, reduce peak grid loading or avoid imbalance charges, will incur high transactional costs to find flexibility rather than simply procuring on the market.

Enable everyone to share the economic benefits of flexibility

Behind-the-meter flexibility assets are a unique opportunity for energy consumers to change their position in the energy economy from "passive price takers" to supplier of a key commodity – flexibility. Consumers, either on their own or through associations (e.g. for social housing) should be able to monetise these assets to control their energy bills and benefit from the energy transition. This can be mediated either by independent flexibility coordinators (today mostly aggregators) or energy distributors offering favourable conditions to flexible consumers. In all cases, transparent market pricing mechanisms would strongly benefit consumers. The certification regime for sites wanting to participate in grid ancillary services needs also needs to be greatly simplified.

The economic operators best placed to source flexibility cost-effectively for the economy could be the energy distributors. This is because their power sources will vary (in variable vs. firm capacity, proportion of embedded generation etc.), the charges and penalties from DSOs will vary (in function of where their customers are) and they should be free to offer to their consumers whichever contract best suits their mix: for instance, aggressively rewarding customers for installing and making available flexible capacity behind-the-meter if they have a high proportion of variable renewables and face congested networks.

Equally, they will end up paying less for the generation capacity that lack flexibility, incentivising producers to firm their generation capacity. They could use their knowledge of where they incur costs to guarantee cash flows for investors in a way that aggregators will struggle to do.

Certification regime

The certification regime for sites wanting to participate in grid ancillary services needs to be greatly simplified. With the installation of smart meters, the code should just mandate the type of technology and record-keeping needed, not require the case-by-case certification that was possible and appropriate when flexibility assets were large power stations.

Continue and accelerate the rollout of smart meters & dynamic pricing

We strongly support the rollout of smart meters. Further, it is essential that the technology is deployed universally and as quickly as possible in a way that supports the development half hourly settlements to enable time of use 'smart' tariffs. We also support load disaggregation behind-the-meter, with different regimes for EV charging, storage+solar and the rest of the loads. For instance, EV charging should be subject to much steeper ToU as Ofgem has recommended, while storage should not be charged DUoS / TNUoS every time it transacts with the network (for instance for frequency response). Load disaggregation may enable households to be compensated for demand-response in a simple, verifiable way.

Mandate smart EV charging infrastructure

Priorities for EV charging infrastructure deployment must go beyond numbers and power of chargers, to mandating that they are bidirectional. The majority of chargers going forward should be mandated as bidirectional. No European country mandates the rollout of bidirectional chargers.

The EU's recent Clean Energy Package is a step in the right direction. But the most relevant implementing directive, the revised Energy Performance of Buildings Directive, only requires EV charging electrical infrastructure for new-build public and workspace car parks, and for existing car parks from 2025.¹⁰ There is no requirement or mention of bidirectional chargers. That falls a long way short of driving a rollout of bidirectional or even smart EV chargers.

For more information visit: www.eaton.com/energytransition

¹⁰ Revised Directive on the energy performance of buildings, Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0844&from=EN>

