

## crowd balancing platform

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### A multi-TSO initiative to catalyse the cost-effective use of balancing potential provided by flexible distributed energy resources

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To meet the EU's climate targets, at least 50% of electricity supply will need to come from RES by 2030 compared to 32% (in 2018), the increase mainly being provided by wind and solar. **The next big challenge will be to ensure sufficient flexible generation capacity while keeping the electricity system secure and costs at acceptable levels.** Although each EU country has a different optimal mix of flexibility resources depending on its generation mix, demand response potential and geographical boundary conditions (e.g. reservoirs for pumped hydro), **flexible distributed energy resources like EVs, home batteries, heat pumps** and other devices can, in any case, contribute to balancing the system and managing congestion with limited upfront costs. If their storage and flexibility capacity can be efficiently used, in the medium term this could cover a large part of the EU's balancing needs and provide for efficient solution to manage infrastructure constraints by means of congestion management.

There are two different paths that could be followed **to unlock the flexibility of these distributed resources** across Europe. The first is the parallel development of a large number of similar, non-coordinated schemes, developed by different TSOs, DSOs, OEMs and aggregators. Each would be using different systems, however, leading to unnecessary costs and inefficiencies across geographical regions. An alternative, preferred approach is the **implementation of a common, cost-effective technology platform** by a significant group of TSOs, on the basis of the most forward-looking technological solution currently available. Such a system would provide the required economies of scale to effectively and efficiently use the massive potential of flexible distributed resources owned by prosumers. This would allow the prosumers to support the energy system and contribute to RES integration as part of the transition towards climate neutrality.

A number of TSOs have therefore taken the initiative to develop exactly such a system that will catalyse the inclusion of EVs, home batteries and other distributed energy resources in the energy and ancillary services markets. Technologically, the approach makes use of **blockchain technology** and is able of communicating with metering devices already embedded in most flexible distributed resources. Such a blockchain-based system has **shown to be robust, reliable and secure** (as well as energy-efficient with regards to other blockchain applications) thus has the full support of the TSOs in question. Given that this would involve millions of small transactions, it is designed to be scalable and retain a full record of all relevant transactions at device level, ensuring transparency with full ex-post verification possibilities, whilst fully respecting privacy concerns of end-consumers. All data can be handled on a real-time basis and will be made available to TSOs, DSOs, BRPs and other concerned actors such as aggregators. Furthermore, the technology and software used will be provided free of charge, open source as to develop secondary applications across the energy value chain.

To unlock the potential provided by flexible distributed resources and reap the benefits of the Crowd Balancing Platform, the participating TSOs are committed to remove the remaining barriers to entry to balancing markets for flexible distributed resources, such as barriers linked to **prequalification process**. As of today, **technical product specifications** for balancing products such as the minimum bid size, availability windows and data exchange protocols are being adapted by TSOs to accommodate distributed energy resources as well as **easing the prequalification processes**. In several regulatory regimes, however, these product specifications and requirements still lead to significant barriers to entry based on legacy technical requirements which used to fit large power plants but are not necessarily efficient for smaller assets. In addition, prequalification processes should be simplified for smaller assets and allow to prequalify multiple devices of the same type at once.

Pilot projects with OEMs (including EV manufacturers) have already been successfully completed. Subject to potential necessary regulatory changes, the system will be progressively rolled out in other countries to deal with the growing share of RES and potential of flexible distributed resources. To reap its full benefits and considering the Clean Energy Package, there are still several **regulatory hurdles at the EU and national level to be dealt with** in a coordinated manner:

- Because European countries are at **different stages of rolling out smart meters**, energy consumers providing flexibility by means of distributed energy resources often require additional calibrated meters. This severely limits the potential for the use of flexibility, whilst most **flexible devices have fit-for-purpose metering equipment** able of providing reliable and real-time measurements. The use of such embedded fit-for-purpose EV and home-battery meters should be enabled, whilst retaining all necessary features for the purpose of accounting and settlement.

- **Tariffs and charges should reflect system costs** that are incurred by using the grid and **be non-discriminatory** between technologies and users. For example, when volumetric charges are applied, i.e. when tariffs are charged on every kWh withdrawn from the grid, their double-counting should be avoided, if electricity is fed back into the grid. This principle, ensuring that costs and charges levied on the grid and storage operators are levied in a proportionate and non-discriminatory manner to ensure fair treatment for electricity storage activities, needs to be applied to all such relevant issues.
- As of today, TSOs do not have full visibility on the impact of their activations on the distribution grids. For example, it could happen that a congestion in a distribution grid is caused by TSOs dispatching thousands of electric vehicles at once. This could cause **ineffective, uneconomic dispatching and even harm secure operations**. Therefore, a common framework in terms of product requirements, data exchange and a clear demarcation of roles and responsibilities amongst different actors (TSOs, DSOs, BRPs, aggregators etc.) is needed, including a clear **scheme of coordination between TSOs and DSOs**.
- The participation of flexible distributed resources in balancing markets bears significant upfront costs, whilst rewards only for activation provides unpredictable cash flows for flexibility providers. TSOs should therefore be able to apply **remuneration schemes for flexibility services** which includes both activation payments (€/MWh) and **availability payments** (€/MW) for at least short time-frames (daily, weekly). This will help flexibility providers to sustainably participate in competitive auctions and contribute to reducing total balancing costs.

As additional cost-effective solutions are needed already by the mid-2020s to complement available demand response, pumped hydro and other flexible resources, the proposed common technology platform acts as a great opportunity. In the absence thereof, investment in wind and PV may falter as curtailment becomes the default option for managing increased imbalances and congestions. In order to address the issues set out above and provide transparency and predictability for development of such a solution, a **comprehensive legislative package at EU level** would be the most appropriate approach, covering both regulatory and tax issues. In the context of the Green Deal, we therefore respectfully ask the Commission to communicate on the importance of distributed energy resources participating in markets for flexibility, identifying potential barriers to be eliminated and specifying the measures to be taken at EU and national level. Developing the proposed platform without delay may provide a technological competitive advantage for Europe at a global level. More important, it will enable prosumers to play their role in accelerating the energy transition and leading to a carbon neutral continent in due course.