

Winter Energy Package: towards a battery revolution?

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The long-awaited Winter Energy Package was published by the European Commission on 30 November. The jumbo-package (more than 1000 pages and 8 new legislative proposals) includes several norms and new legislation on energy efficiency, energy market design, eco-design and renewables: more importantly for battery energy storage, it finally includes an appropriate framework for energy storage. However, the package includes also some worrying signals for renewable energy sources. The European Commission decided to establish a conservative 2030 target for renewables (27% of renewables in the final energy consumption) and substantially limits priority of dispatch.

Despite these signals, batteries will be fundamental to properly integrate renewables in the future energy system. Batteries can store energy from on-peak renewable energy and release it when it is more needed, in central, de-centralized and off-grid situations. Variable renewable generation, combined with energy storage, represents a fixed generation capacity which can be valued on capacity markets. Additionally, storage devices can compensate for the destabilizing effects of variable generation on grid stability

Batteries can also offer grid support services like voltage control and frequency regulation, so maintaining grid stability and flexibility. These battery services improve the working conditions and stress-resistance of the grid, extending its capacity and making it more secure, reliable, and responsive. Battery energy storage can thus extend

the life of existing infrastructure, either allowing deferral of investment or entirely avoiding the need to make expensive investments in transmission/distribution system upgrades.

At household level, a battery system connected to a PV or small wind generator can increase the percentage of self-consumed electricity from about 30% without storage to around 60-70%, optimizing efficiency and reducing the amount of additional power needed from the grid. Besides, the batteries of electric and hybrid cars, as well as motive power batteries of machineries for material handling or ground support equipment, can also be source of flexibility for the grid through demand response and aggregation.

Overall, batteries can bolster Europe's use of renewables, as well as its energy efficiency, sustainability, independence and security. Despite technological advances, cost reduction and relevance of services offered by the four battery technologies (lead, lithium, sodium and nickel), battery energy storage has so far been hampered by serious and unintended legislative barriers and the lack of an appropriate framework. The proposal of the European Commission addresses most of these barriers, recognizing the importance of battery technologies and creating positive conditions for Europe to fully embrace the battery energy storage revolution.

As EUROBAT, as highlighted in our paper on barriers, opportunities services and benefits of energy storage, we believe that a first and very important decision is the inclusion of a definition of energy storage in the Electricity Directive: for the

legislator, "energy storage" means, in the electricity system, deferring an amount of the electricity that was generated to the moment of use, either as final energy or converted into another energy carrier". This definition finally recognizes the existence and relevance of storage for the electricity system and it is a first step towards the establishment of energy storage as a separate component of the energy system (besides generation, transmission/distribution and consumption) with its own characteristics and properties.

Another extremely important decision is the proposal to remove discriminative network tariffs against energy storage. Storage systems take electricity from the grid when they are charging and inject electricity into the grid when they discharge. However, since some member states impose taxation on both generation and consumption, storage system owners often have to pay double grid fees. The proposal of the Commission is the first step towards the elimination of these unnecessary and unjustified double grid fees.

It is also important that all market participants shall be financially responsible for imbalances they cause in the system, thus incentivizing the providers of flexibility services such as battery energy storage. Electricity prices actually reflecting actual demand and supply will be important tools to send correct market signals prices for demand-response, smart appliances (including electric and hybrid vehicles and motive power batteries) and storage solutions like batteries and would generally act as a critically important tool for ensuring flexibility.

On the negative side, the Commission also stated that Transmission System Operators (TSOs) and Distribution System Operators (DSOs) shall not be allowed to own, develop, manage or operate energy storage facilities. Exceptions to this rule are included in case of market failures. However, this provision could limit the market potential and full deployment of batteries.

Grid operators have a clear interest in directly operating storage systems to balance the grid, and having direct control over them would allow a safer and prompter balancing of the electricity grid. A "build or buy" choice would have been preferable, allowing grid operators to procure system flexibility services from storage facilities in the market or fulfil their needs themselves, depending on case by case situations. The creation of a proper market for storage services, allowing also small players to participate on an equal stand, individually or through aggregation, is anyway a positive news of the package.

Overall, and despite some shortcomings, EUROBAT members are convinced that the European Commission has decided to take the right decisions to stimulate the creation of a proper market for advanced batteries for energy storage. Also the measures to promote the deployment of hybrid and electric vehicles go in the right direction. It will be important that in the coming months the European institutions will keep working to promote the role and competitiveness of European battery producers, to keep the production of such a key enabling technology in Europe and take full advantage of the battery revolution. ●

