

In the fallout from the European Commission unveiling its plans for an ambitious Energy Union, the Association of European Automotive and Industrial Battery Manufacturers, EUROBAT, takes stock

# Battery storage and the Energy Union

The Energy Union strategy, recently published by the European Commission, will shape the EU's energy policy for years to come. Energy security, decarbonisation of the economy, deployment of renewables and energy efficiency are fundamental issues for the future of Europe and its citizens. Renewables will play a fundamental role in this task, but to really advance their deployment, energy storage will be needed; it is absolutely crucial that the strategy recognises the importance of both renewables and storage, but the implementation of the strategy, the roadmap and the measures approved in this field in the next five years will be key to achieving these targets.

Remarkably, in its document the European Commission renews its support for the deployment of renewables in Europe and recognises the magnitude of the challenges ahead of us and the need to adopt an holistic approach to face them. There are no doubts over the fact that the shift to renewables is a fundamental step towards achieving energy security and combatting climate change. Their growth will also ensure a reduction of European CO<sub>2</sub> emissions and pollution, encouraging the transition towards a decarbonised economy.

In the strategy, the European Commission surely declares an ambitious target: to become the world number one in renewable energies. In recent years, the growth of the share of renewable energy in Europe has indeed been remarkable: according to the Commission, the share increased from 7.5% in 2000 to 14.4% in 2012, putting the continent on track to achieve the 20% target foreseen for 2020. Nevertheless, there is still space for renewables to grow in the European energy mix, especially considering that the deployment of renewables is not distributed evenly among EU countries. In 2012, the value ranged from 0.3 to 52.4%, with only nine countries above the 20% level.

To become the world number one in renewables, ambitious policies should be implemented by the Commission and the member states. The Energy Union strategy is a first step in the right direction, but to achieve this target, identification of the most appropriate tools available will be vital, and one of the key tools to deploy renewables in Europe is energy storage, as correctly recognised in the strategy.

Renewables are not a constant source of energy and depend on unstable weather conditions: when the wind does not blow or the Sun does not shine, solar panels and wind turbines cannot provide electricity. So far, the integration of renewables into the electricity grid has posed important challenges in terms of stability and continuous availability, and with the growth of the share of renewables these challenges will become more and more relevant. Battery energy storage and services are an optimum solution to overcome these barriers.



Alfons Westgeest

## Batteries in play

Batteries can also offer grid services like voltage control and frequency regulation, maintaining grid stability and flexibility. The world of energy is rapidly changing, and the Energy Union strategy will have to consider these changes. Power will no longer only flow in one direction from the power sector to consumers, who will be encouraged to actively manage their energy demand. Storage is also an optimum solution for homes and residential buildings, allowing users to store electricity from local generation when it is not needed and discharge it when it is needed. This can increase the percentage of self-consumed electricity from a maximum 30% without storage to around 70%, optimising efficiency and reducing the amount of additional power needed from the grid.

Distribution service operators will face several challenges in integrating renewables into their networks: higher peak loads, more severe power requirements, and the challenge to continue matching supply and demand. Battery energy storage ensures grid stability and flexibility in spite of these challenges, and demonstration projects have been underway for several years to prove the potential of different battery technologies in this capacity.

Battery energy storage is relevant for all five pillars of the strategy. The first pillar, energy security, has its centre of gravity in security of supply and increase of production of indigenous energy sources. Batteries can easily comply with both tasks, stabilising the production of renewables, ensuring a steady and constant electricity transmission into the grid, and allowing the share of indigenous-produced renewables into the European energy mix to grow.

A fully integrated energy market, the second pillar of the strategy, should surely consider energy storage among the markets to improve. Right now, there is not a common European definition of 'energy storage', with the result that in most member states energy storage is



defined as a regulated ‘generating asset’, disadvantaging it in any energy calculation and, above all, creating differences among national markets. The first precondition for a functioning and fully integrated energy market is the elimination of unnecessary national differences to create a predictable market and ensure a level playing field.

It is thus fundamental that the European Commission works on a consistent EU definition of energy storage and includes it in network codes and relevant EU legislation. The strategy includes plans to strengthen the role of the Agency for Cooperation of Energy Regulators and the European Networks of Transmission System Operators for Electricity and Gas. One of the first tasks of these upgraded bodies should be to work on a common definition of energy storage to open up the grid to independent storage providers, recognising storage as the fourth component in the grid besides generation, transmission, and distribution.

Energy efficiency, the third pillar of the strategy, could also receive a significant contribution from batteries. Right now, when the energy production peaks, it is possible for energy producers to curtail renewables production by switching off excess power. The effect of curtailment is to favour cheaper, but more polluting, energy sources, removing the major incentive to install storage systems and wasting low carbon energy. Removing or limiting the

**The EU is planning big changes to energy policy**

possibility of power curtailment would result in less wasted energy and would create demand for batteries and other storage technologies to store excess power and release in peak periods.

**Electromobility**

Batteries also play a key role in the development of an energy efficient, decarbonised transport sector. The electrification of the car fleet, the development of cheaper and more efficient hybrid and full-electric vehicles, passes through batteries; to break oil dependency and decarbonise a sector responsible for more than 30% of final energy consumption in Europe, we need to speed this up. The Commission could clearly contribute to this goal, creating a positive business environment for electric and hybrid vehicles, investing in the necessary infrastructure (e.g. refuelling and recharging stations), and promoting investments in research and development to improve the efficiency of advanced, electrified vehicles. Both electrification of the fleet and deployment of renewables would clearly have beneficial effects for the environment, reducing carbon emissions and decarbonising our economy.

One sentence should be highlighted from the fifth pillar of the strategy on research and innovation: ‘If Europe’s Energy Union is to be the world number one in renewable energies, it must lead on to the next generation of renewable technologies as well as to storage solutions.’ Storage has the potential to be the perfect solution to overcome the limits of renewables. To be at the forefront of worldwide change, Europe should invest to improve the production of energy from renewable sources, reduce the costs of energy from renewable sources, and ensure stability of supplies. All these targets are achievable only with political and financial support to public and private research and innovation; programmes like Horizon 2020, the SET-Plan and the recently proposed Juncker Investment Plan should thus be focused on energy, with a particular focus on renewables and storage.

**Towards the future**

Despite being a readily available technology, battery energy storage is nowadays seriously limited in Europe – mainly due to market and



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legislative barriers. The EU large scale storage market lags behind its international counterparts in the US and Japan for several reasons, and the risk of dissipating the important knowledge and expertise of the European battery industry is concrete. As already stated by the Commission itself, “European energy storage development requires new European rules to enable its speedy development”; the debate on the Energy Union offers a valuable opportunity to advance the deployment

The Energy Union is a major priority for the Juncker Commission as the EU executive moves to push the completion of the single energy market. If this ambition is realised, it will have a comprehensive and fundamental impact upon Europe as a whole.

Speaking about the launch of work on this strategy, Maroš Šefčovič, the Vice-President of the Commission responsible for the Energy Union, said: “Our current energy policies are unsustainable in every sense and in urgent need of reorganisation. Citizens should be at the core of our energy policy. While we have a very ambitious agenda, the momentum is here and now. We will work to ensure a coherent approach to energy across different policy areas to create more predictability. Climate, transport, industry, research, external policy, the digital economy and agriculture will all be crucial to the project. The Energy Union aims to break the silo culture where it still exists and bring all relevant players to the same table – in short, the Energy Union will set the scene for a new way of making energy policy in Europe.”

With this being a major political concern for the Commission, it appears that energy matters, and associated topics, will remain high on the agenda in Brussels for the foreseeable future.

**EUROBAT advocates moves towards renewables and electromobility**

of battery energy storage across the continent, overcoming existing legislative barriers.

The implementing measures of the Energy Union strategy will have to address these barriers and support storage solutions to facilitate the integration of renewable energies into Europe’s electricity grid. The various services offered by batteries make battery energy storage a cost-competitive solution to integrate renewables into the grid. There is no doubt that continued R&D is needed to further reduce prices and improve the performance of battery energy storage. Nevertheless, each battery technology can be implemented to provide on-grid storage today and so should be prioritised by policy makers, standardisation bodies and industrial players in Europe through an ambitious, holistic and forward-looking implementation of the Energy Union strategy.

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