Energy Local Storage Advanced system

The ELSA battery energy storage system, safe, scalable and green

ELSA midterm conference

Event review

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On the 27th of October, the ELSA consortium held its project midterm conference at La Maison des Travaux Publics in Paris. The consortium invited stakeholders from the automotive, building and energy sector as well as further interested parties to a presentation of the first project insights and a visit to the ELSA prototype, installed at the Bouygues Challenger building.

Servan Lacire, Innovation and Technology Director at Bouygues Energies & Services, opened the conference to the more than 70 participants with the words: “Storage is a small need for today and a large need for tomorrow”. In his welcoming presentation, he talked about the need for storage, the energy storage markets and the need for the building industry to be part of the energy storage development. He further introduced the ELSA project and its targets. Apart from the storage system itself, ELSA develops a smart energy management system employing open interfaces in order to be able to adapt to different storage systems. Furthermore, the ELSA system is trialled at six pilot sites in different EU countries to cover different use cases and take into account different national regulations. After testing at the pilot sites, ELSA plans to have early adopters of the ELSA system by the end of 2017.

After the introduction to the ELSA project, Ludwig Karg, Managing Director of B.A.U.M. Consult, related ELSA to the current EU framework and activities. Apart from the SET-Plan, he highlighted ongoing cooperations between the H2020 Projects (Bridge) and beyond (ETIP SNET).

The keynote of the day was given by Michael Lippert, EASE Vice-President and Marketing & Business Development Manager at Saft. EASE, the European Association for Storage of Energy, was founded in 2011 and is the voice of the storage industry in the European community. “We promote and work for a fair market design. We promote and work for the funding of storage-related projects”, said Michael Lippert. After the introduction to EASE, Mr Lippert talked about storage as a key enabling technology for the integration of renewables, but also pointed out that demand for storage varies across the EU member states depending on the power system characteristics and storage costs. He further presented a number of identified entry barriers for storage, such as system position of energy storage or the remuneration not matching the value creation. Another important issue discussed was ownership: Who should be able to own and operate a storage asset in the future? To answer this and further questions, EASE has formulated a set of recommendations for the ownership of storage.

After the storage keynote, Nicolas Schottey, Deputy Program Director EV, Battery & Infrastructure at Renault, talked about the reason why Renault is part of the ELSA project and the benefits of the the ELSA battery energy storage system. In 2016, Renault-Nissan expects to sell 350.000 electric vehicles. This development will make them a key player in the future energy world. The ELSA project brings three very different industry sectors together: build-

ing, automotive and energy. Mr Schottey further presented the benefits of using second life batteries and highlighted the ELSA system as a 'plug & play' solution.

After that, representatives from the six ELSA pilot sites took the stage. In a panel discussion moderated by Ludwig Karg, Managing Director of B.A.U.M. Consult GmbH, Massimo Cresta (ASM Terni), Anica Berthold (RWTH Aachen), Thomas Eberl (egrid), Ella Etienne (Green Soluce), Petar Mihaylov (Nissan) and Sarah O'Connel (UTRCI) introduced the situation at their respective pilot site. The panel started with an introduction to the ELSA use cases by Massimo Bertoncini (Engineering). ELSA tests a variety of use cases on the building and district level. Almost all of the ELSA use cases are covered by the six pilot sites and will thus be demonstrated and validated within the ELSA project.

The participants were then invited to participate in one of three focus groups.

Conclusions from the focus group: Technological and ICT requirements for the use of second life batteries in storage applications (Moderation: Stefano Riverso, UTRCI & Brice Fourney, Bouygues):

The discussion in this group revolved around the difference of developing battery energy storage systems with second life EV batteries instead of new ones. There are constraints to be considered regarding the mechanical part of their integration, but also advantages, especially regarding the safety of the system (high safety standards for EV batteries). One of the key questions in the focus group was how to deal with the integration of different second life batteries (different capacity, different manufacturers, etc.).

Regarding the ICT requirements, the communication protocols were discussed as the key part enabling the system to be interfaced with either the local building management system, the DSO management system or commercial aggregators.

Conclusions from the focus group: Environmental aspects of second life battery energy storage systems (Moderation: Frederic Malefant, Renault & Michael Stöhr, B.A.U.M. Consult)

Battery energy storage systems have an impact on the environment. This impact itself is, as such, negative. Negative here means that there is a use of not renewable resources and emissions related to the deployment of such storage systems. But, with battery energy storage systems overall, and with second life batteries in particular, we achieve a positive environmental impact. This positive environmental impact is created by the use phase of the battery energy storage system. Two mechanisms by which a positive environmental impact can be created were discussed. By installing and operating a battery energy storage system, it is possible to have a higher rate of RE generation from existing installations or to integrate a higher rate of RE installations into the grid. In both cases, less consumption of energy from fossil sources is achieved which leads to an overall positive environmental effect.

The second mechanism is that by operating a battery energy storage system, a more constant operation of fossil power plants is achieved. This leads to a higher efficiency of traditional power generation. It also leads to less consumption of non-renewable resources and less emissions.

These mechanisms are valid for battery energy storage systems both with new and second life batteries. Using second life EV batteries holds the additional environmental benefit that the resources would have been used anyway. Thus, it can be discussed that the environemental impact of the battery production can, to a large part, be charged to the batteries' first life (EV).

Conclusions from the focus group: Economic assessment of second life batteries as storage solutions and business cases for small- to medium-scale storage applications (Moderation: Ludwig Karg, B.A.U.M. Consult & Massimo Bertoncini, Engineering)

- One of the open questions from an investor point of view was: What is the economic model leading to IRR profits?
- Primary reserve is the most valuable service today, but it will be a quickly saturated market with falling prices. So stacking of services is key and a change in regulations is needed in order to make that possible.
- At the level of the single building, the impact on services to the grid is, at the current stage, minimal. However, if you aggregate a certain number of office buildings, the services become valuable.

After a networking lunch, the participants joined the ELSA consortium for a visit of the ELSA prototype, installed at the Bouygues Challenger Building. The ELSA midterm conference was accompanied by a press conference.