

Bonn, 31 October 2016

Study: Global Residential PV Energy Storage Market Overview

A. Target and methodical approach

The study analyzes the residential energy storage markets in Europe (with focus on Germany), the USA and Australia. The target is to identify the top battery storage companies in those countries regarding their market shares in the first half of 2016 as well as their brand awareness amongst local intermediaries.

The study contains three chapters with a general market description (framework conditions and growth opportunities), installer insights as well as market shares of the top 10 battery storage companies in each country.

1. Framework conditions and growth opportunities

The demand for storage solutions depends on different parameters. Due to the fact that residential storage solutions are almost entirely installed in connection with a photovoltaic system, the development of new installations of PV systems under 10 kW is an essential factor.

EuPD Research developed the "Global Storage Market Modell" to describe the potential for storage solutions in different country markets. For identifying the potentials of storage solutions within a country market, a variety of parameters have to be analyzed. These parameters can be described within the following 5 segments.

1. Political Framework
2. Economic parameters
3. Energy market parameters
4. PV market data
5. Calculated indices

1. Policy factors include governmental PV installation targets, as well as renewable energy aims, support schemes for PV and electrical energy storage installations and installation or financing caps. Another aspect is the political regulations on electricity prices: charges or subsidies on electricity prices, for example, influence the attractiveness of self-consumption solutions. Import duties are also an important factor for the development of PV sales markets as they increase PV system prices and lower installation numbers.

2. Interest rates can be economy factors. For example, low debt interest rates will push investments in alternatives such as a PV system. Income situations play an important role, because without financial strength, no investments can be made.

3. Under the third aspect, energy market parameters such as electricity demand (status quo and growth path) have to be analyzed, because growing electricity demands will push investments in new technologies such as PV or storage. Other facets that have to be considered are electricity prices on a residential level, which are important for self-consumption solutions.

Backup power is seen as a major application area for storage solutions. Here, the System Average Interruption Duration Index (SAIDI) is an important indicator. Storage systems can also be used for

the stabilization of electricity grids. Control energy prices play an important role for investments in storage solutions focused on grid stabilization.

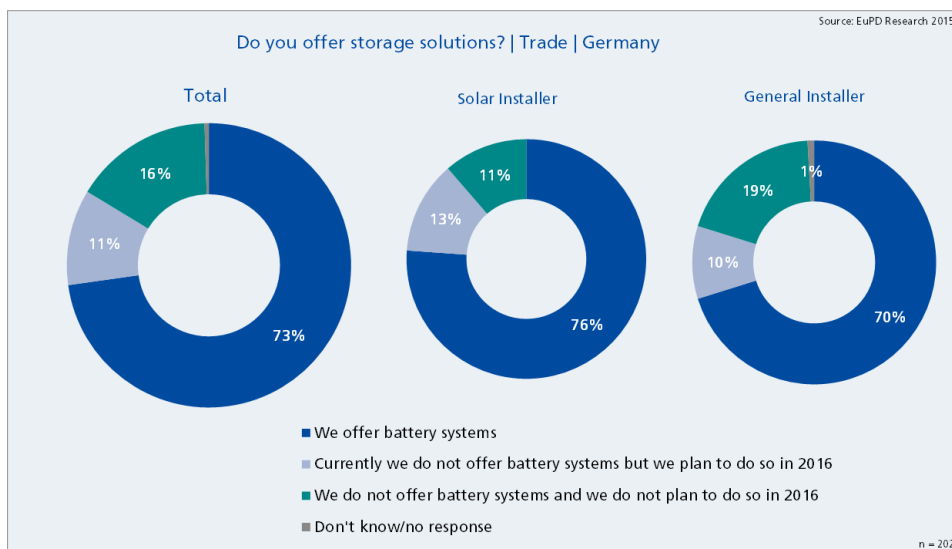
4. Especially the development of small scale storage systems depend on the growth of the PV installation numbers. PV market data means newly installations as well as cumulated installation numbers. Due to the fact that storage solutions are able to be retrofitted, also existing PV installations are an important fact to describe the potential of a country market.

5. Based on the above describe parameters, different indices such as levelized costs of electricity (LCOE) of the PV system, return on invest or grid parity of newly installed PV systems could be calculated.

These parameters are displayed in detail for the 3 country markets.

2. Installer Insights

The PV installers are the most important market intermediaries, and therefore essential in regards to brand choice. Therefore it is vital to understand which brands the installers are aware of, and which brands they offer. Furthermore, the installer insights will further shed light on how high the percentage of installers, which already offer energy storage to their customers, is. This will further emphasize how high the potential of the various markets are.



The installer insights are available for all analyzed markets: Germany, the USA, Australia and Europe (the UK, Italy, the Netherlands and Austria & Switzerland).

3. Market Shares

The starting point for the analysis of the market shares is the company level, i.e. based sales figures per company and country market are collected. In terms of the data collection, companies are surveyed. If no information is provided by the company, estimates of the sales figures are made. The sales figures are critically reviewed by using additional data sources and integrating a holistic market overview (e.g. number of installed systems in the residential segment). As a result, the market shares of the Top 10 battery storage companies are calculated for Europe and in detail Germany, the USA and Australia.

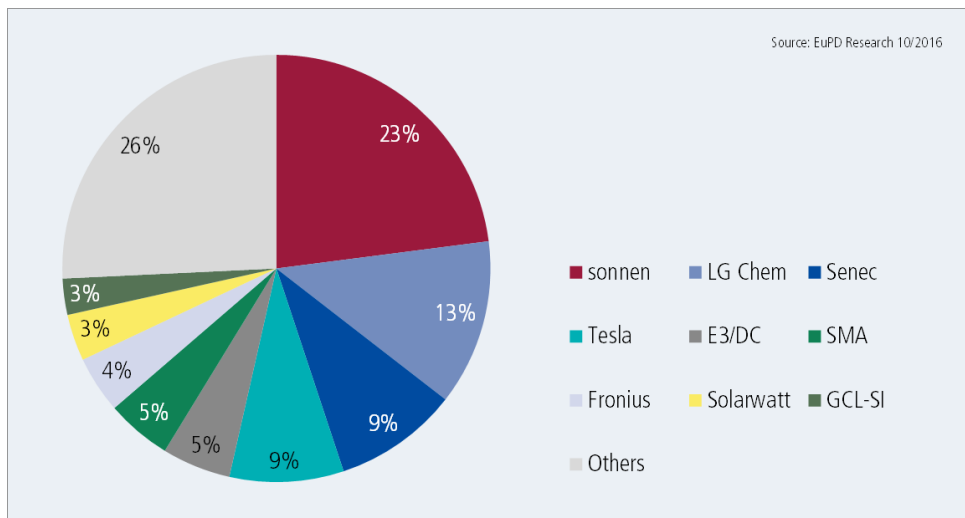


Figure: Cumulated market shares Europe, USA and Australia

B. Structure of the report

1. Introduction
2. Methodical Approach
3. Framework conditions and growth opportunities
 - a. Europe
 - b. Germany
 - c. USA
 - d. Australia
4. Installer Insights
 - a. Europe
 - b. Germany
 - c. USA
 - d. Australia
5. Market Shares
 - a. Europe
 - b. Germany
 - c. USA
 - d. Australia
6. Summary
7. Appendix (Company profiles of the Top battery storage companies in alphabetical order)

C. Contact:

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D. Order Form

I hereby order the above-described study "Global Residential PV Energy Storage Market Overview"*.

Price: 2,750 € excl. VAT

*the report will be delivered as a PDF-file (in .ppf-format) and will contain approx. 50 pages.

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