EU regulatory barriers to energy storage – how to unlock the grid code?

EERA Workshop on Hybrid Energy and Energy Storage Systems
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About the association, its members and competitive European industry

- **Manufacturers and supply chain** of automotive and industrial **batteries**. Represents industry at EU and national level.

- With **52 members from across the continent** comprising more than **90% of the battery industry** in Europe, as well as Middle East & Africa

- **Exchanges expert information** to stakeholders incl. renewable energy storage and electrification of mobility.

- Technologies: **Lead, Lithium, Sodium, Nickel**.

- **30,000 jobs in EMEA**: industrial base.
Membership - Supply Chain
International outlook

- Cooperation with battery associations US, Japan, China and Government Agencies and Standards organizations
- Renewable energy organizations: total value chain is important
Battery Energy Storage (BES)
Every level of the grid

- Batteries are **tailored for different system requirements** and can be installed at every level of the grid.
Battery Energy Storage in the EU
Barriers, Opportunities, Services and Benefits

Compared to other storage technologies, batteries are still a small part of the market, but they are growing rapidly thanks to cost decrease and easy installation.

Share of different storage technologies in global electricity storage system (in MW).
Battery Energy Storage in the EU
Barriers, Opportunities, Services and Benefits

250GW Of Battery Storage By 2030 : IRENA

January 16, 2017 Energy Matters

Battery storage could increase to 250GW capacity globally by 2030 states a new report from the International Renewable Energy Agency (IRENA).
Battery energy storage is rapidly developing worldwide and in Europe.

Disclaimer: this graphic is 3 years old (2014) regional battery storage cell sales for utility-scale applications (USD thousands) Source: IRENA/Navigant
Battery Energy Storage in the EU
Barriers, Opportunities, Services and Benefits

But there is still lot of room for improvements: the market is still nascent. Compare this with existing motive power installed base!

#Batteryfacts

The total capacity of installed motive power batteries in the EU is more than 20 GWh, higher than battery energy storage systems in the world (<1 GWh)
A fair legislative framework for battery energy storage is needed in Europe!

EUROBAT Report on Battery Energy Storage:
- Benefits and services at different levels of the grid
- Battery technologies for energy storage
- The EU battery industry and market trends
- Legislative barriers and opportunities in Europe

Available on [www.eurobat.org](http://www.eurobat.org)
Battery Energy Storage in the EU

Clean Energy package on energy (30 November 2016)

- Electricity Directive/Regulation
- Renewable Energy Directive
- Energy Union Governance
- Energy Efficiency Directive
Battery Energy Storage in the EU

Clean Energy package on energy (30 November 2016)

**Highlights**

- EU-wide 27% objective for renewable energy by 2030
- EU-wide 30% objective for energy efficiency by 2030
- Priority of dispatch will stay for existing renewables farms, small-scale installations and demonstration projects, but new projects where renewables account for more than 15% of energy production will no longer benefit
- Measures requiring the installation of EVs recharging points in new and renovated buildings

Now under discussion at Council and EU Parliament level
Barriers to energy storage in the EU

Several barriers prevent the deployment of energy storage in Europe:

- Lack of definition of energy storage and double grid fees
- Unclear ownership rights
- Value streams of ancillary services
- Curtailment and balancing responsibilities
- Electricity pricing

For the deployment of energy storage in Europe, EUROBAT proposes the following:

- Definition of energy storage and unfair taxation
- Clarify ownership rights
- Reward ancillary services
- Eliminate possibility/incentives to curtail
- Electricity prices reflecting scarcity
1. Definition of Energy Storage

EC PROPOSAL

- A definition is proposed: “'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.” (Electricity Directive, Chapter 1, Art. 2.47)

- No recognition of storage as a “new asset” in the electricity grid
- Issue of double taxation not solved
2. Ownership rights

EC PROPOSAL

- TSOs/DSOs shall **not** be allowed to own, develop, manage or operate energy storage facilities. Member States **can** allow a 5-year derogation, only if:

  A – no interest from other parties, **and**

  B – facilities are necessary for the efficient, reliable and secure operation of the system, **and**

  C – the regulatory authority has assessed the necessity of such derogation

(Electricity Directive, Chapter 4, Art. 36)

- **Risk of de-incentivise energy storage**
- **Clarify derogation clauses**
Battery Energy Storage in the EU

3. Value Streams of Ancillary services

EC PROPOSAL

- Aggregation is allowed to enable active market participation of consumers and small businesses (Electricity Directive, Chapter 3, Art. 13)
- Network code on “demand response, including aggregation, energy storage and demand curtailment rules” will be developed.
- Final customers are entitled to generate, store, consume and sell self-generated electricity in all organised markets either individually or through aggregators without being subject to disproportionately burdensome procedures and charges that are not cost reflective (Electricity Directive, Chapter 3, Art. 15)
- TSOs/DSOs will organise public tendering for ancillary services open to all market participants including storage and aggregators. (Electricity Directive, Chapters 4-5)
4. Curtailment and balancing obligations

**EC PROPOSAL**

- Curtailment will be financially compensated when non-market based curtailment (i.e. due to system constraints) is used, but the provision of market-based resources will be open to storage. (Electricity Regulation, Chapter 2, Art. 12).
- All market participants, including large scale producers of Renewable Energy Sources (RES), shall be financially responsible for imbalances they cause in the system. Demonstration projects and small RES producers (<500kW until 2026, then <250kW) are exempted. (Electricity Regulation, Chapter 2, Art. 4).
5. Electricity pricing

**EC PROPOSAL**

- Member states shall ensure that electricity prices reflect actual demand and supply. (Electricity Directive, Chapter 2)
- Transparent real time price signals will be developed to stimulate customer participation
- EC will phase-out regulated prices below cost and encourage Member States to establish a road map for the phasing-out of all regulated prices.
- Consumers are entitled to dynamic price contract and can engage in demand response, self generation and self consumption
Battery Energy Storage in the EU

Towards a ‘2030 Battery Strategy for Europe’

Several EU Initiatives remark the need of EU manufacturing of li-ion battery cells

• SET Plan
• Clean Energy Package
• GEAR 2030
• Batstorm
• EC Communication on innovation
Battery Energy Storage in the EU

Towards a ‘2030 Battery Strategy for Europe’

- All battery technologies are relevant for jobs and growth
- Policy coherence (energy – transport – environment) needed
- Business certainty
- Forward-looking strategy

LEAD  LITHIUM  NICKEL  SODIUM
Conclusions and recommendations

Batteries are **key to decarbonise the European energy mix** and improve citizen’s health and the environment.

**Renewable energy can grow** further through storage.

Manufacturing in Europe is stimulating both **direct job numbers as well as in R&D**, universities and installation.

**Europe must catch-up in its market design**, compared to US and several other countries and regions and develop an appropriate regulatory framework.

EU has to **take into account contribution** offered by new technologies like BES. It is time to prepare the ground and **remove legislative barriers to BES**.
Thank You

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