European Association for Storage of Energy

First Meeting of the Grid Connection
European Stakeholder Committee

Ljubljana, 18 March, 2016

I. Introduction to EASE

The European Association for Storage of Energy…

… is the European **voice** of the energy storage community.

… advocates the **role of energy storage** as an indispensable instrument for the energy system.

… supports a **sustainable**, **flexible** and **stable** energy system.

… **shares** and **disseminates** information.

Strategic Objectives:

1. Promotion of the role and benefits of energy storage
2. Fair market design for energy storage
3. Promotion of funding for energy storage (mainly RD&D)

I. Introduction to EASE

Membership

II. Energy Storage Technologies

EASE **supports all energy storage technologies** and believes that storage needs to be addressed in a **technology-neutral manner.**

Chemical

- Hydrogen
- Synthetic Natural Gas

Electrical

- Capacitors
- SMES

Electrochemical

Classic Batteries

- Lead Acid
- Li-Ion
- Li-Polymer
- Li-S
- Metal Air
- Na-Ion
- Na-$NiCl_2$
- Na-S
- Ni-Cd
- Ni-MH

Flow Batteries

- Vanadium Red-Ox
- Zn-Br

Mechanical

- Flywheels
- Adiabatic Compressed Air
- Pumped Hydro
- Diabatic Compressed Air
- Pumped Heat Electrical Storage
- Cryogenic Energy Storage

Thermal

- Heat (Hot Water/PCM)
- Molten salt (Heat/CSP thermal)
- Packed-bed Heat Storage
- Smart Electric Thermal Storage

III. Energy Storage Applications

EASE has identified and described a comprehensive set of energy storage applications and organised them by segment of the energy system.

	Generation	Transmission	Distribution	Customer services
Conventional	Black start	Participation to the primary frequency control	Capacity support	End-user peak shaving
	Arbitrage	Participation to the secondary frequency control	Dynamic, local voltage control	Time-of-use energy cost management
	Support to conventional generation	Participation to the tertiary frequency control	Contingency grid support	Particular requirements in power quality
Renewable	Distributed Generation Flexibility	Improvement of the frequency stability of weak grids	Intentional islanding	Continuity of energy supply
	Capacity firming	Investment deferral	Reactive power compensation	Limitation of upstream disturbances
	Limitation of upstream disturbances	Participation to angular stability	Distribution power quality	Compensation of the reactive power
	Curtailment minimisation		Limitation of upstream disturbances	

III. Energy Storage Applications

Representation within EASE

- EASE members represent the entire value chain and include leading companies active in all sectors of energy storage technology
- Due its versatility, energy storage can act as a “generator”, as a “network asset” or as a “consumer”
- Energy storage allows for sector exports, e.g. from electricity to gas, from electricity to heat…
  - Some devices can be seen as a demand facility in the electricity system
  - Some devices can be seen as generators

IV. Network Codes

Why are they important for EASE?

- EASE aims to support system evolution to ensure that the added value of energy storage is recognised in all relevant EU legislation. EASE is therefore eager to follow the implementation process of the grid connection network codes

- Energy storage is key to ensuring the flexibility of the grid and allowing for the integration of an increasing share of renewable energies

- A level playing field for energy storage technologies across the EU is necessary for the successful development of the energy storage market

V. Definition of Energy Storage is needed for the regulatory framework to be efficient

EASE is currently working on a definition of energy storage, with the aim that this will be included in the Winter Package.

An EU-wide definition of energy storage is important since it ensures that all Member States will have the same understanding what energy storage is and the regulatory framework can be build upon such a definition.

An important aspect of the definition is the need to cover all known energy storage technologies and applications, while being general enough to allow for the integration of unforeseen innovations. This includes future technologies but also specific services energy storage can provide, which will evolve over time.

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