



Overview of EU Policies Framing Energy Storage

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Introduction to EASE

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)



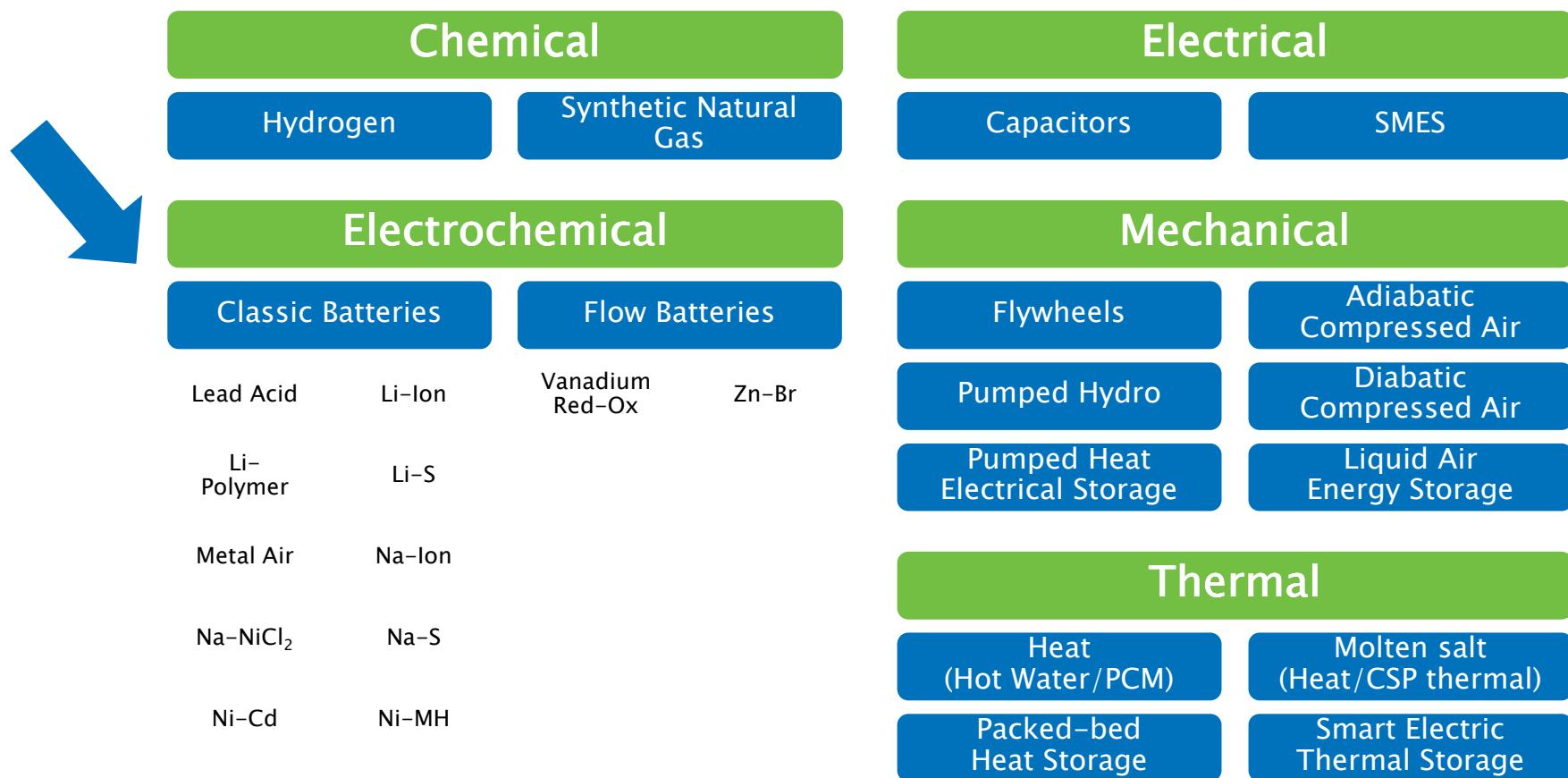
EASE Members





Energy Storage Technology Families

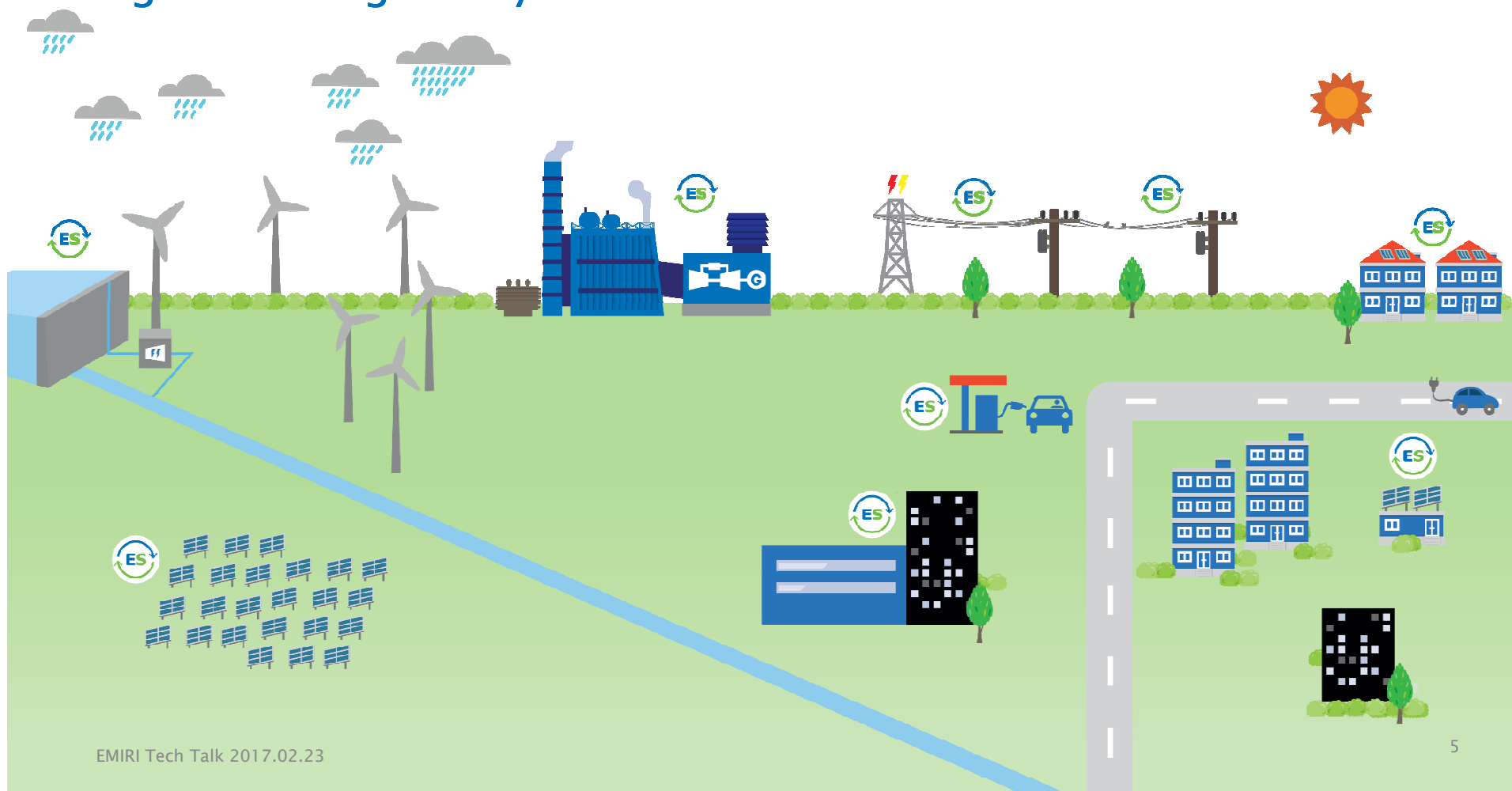
A wide range of energy storage technologies is available to provide valuable services to the energy system





Energy Storage in the Energy System

Energy Storage is being deployed at all levels of the grid, but significant regulatory barriers remain.





Some Regulatory Barriers Affecting the Energy Storage Business Case

- **System position of energy storage**: lack of a definition of energy storage in EU regulatory framework and regulatory uncertainty on ownership of energy storage devices
- **Unwarranted fees and taxes** on energy storage devices affect energy storage at the grid level as well as 'prosumers'
- **Remuneration does not match value creation**: energy storage devices are not fairly remunerated for e.g. extra-fast response times of battery energy storage arrays
- **Lack of market-based procurement of ancillary services** (already a viable revenue stream for battery energy storage systems)





Market Design Elements of the “Clean Energy for All Europeans” Package Elements



“Clean Energy for All” Package of legislative and non-legislative measures, issued 30.11.2016, including:

*Proposal for a revised
Electricity Directive*

*Proposal for a revised
Electricity Regulation*

Electricity Regulation will be directly applicable in national legal order

Electricity Directive will have to be transposed into Member State legislation

Legislation could enter into force end-2019



Definition of Energy Storage – Commission Proposal

- As proposed by EASE, an energy storage definition has been included in the “Clean Energy for All” Package proposals for a revised Electricity Directive:

“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”

- This **robust and broad definition** does not limit energy storage to electricity-in/electricity-out; rather, it encompasses “power-to-x” and thermal Energy Storage systems
- The definition is needed to **create investment certainty** for European industry and to **properly situate energy storage in the regulatory framework**, alongside generation and demand



Definition of Energy Storage

EASE's desired improvements/amendments

- Replacing “generated” with “produced” or a similar verb to have no explicit link to generation assets:

*“energy storage means, in the electricity system, deferring an amount of the electricity that was **produced** to the moment of use, either as final energy or converted into another energy carrier”*

- Establishing energy storage as a separate asset class, the 4th element along with generation, distribution/transmission and consumption, as proposed by the European Parliament in the “Towards a New Energy Market Design” Report (September 2016)



Ownership by Regulated Entities

Unbundling rules for transmission and distribution system operators (TSOs and DSOs) – Commission Proposal

- Generally, TSOs and DSOs not allowed to
“own, develop, manage or operate energy storage facilities”
- By way of derogation, TSOs and DSOs can own energy storage when:
 - other parties, following an open and transparent tendering procedure, have not expressed their interest
 - such facilities are necessary for the distribution system operators to fulfil its obligations under this regulation for the efficient, reliable and secure operation of the distribution system
 - a relevant national regulatory authority (NRA) has assessed situation and granted its approval
- Periodic review (e.g. every 5 years) may reverse derogation



Ownership by TSOs and DSOs

EASE position (1 / 2)

- For energy storage applications deemed to be market services, e.g., arbitrage, only market players should be allowed to own or operate energy storage facilities for their provision. The market should reflect the system needs, which would provide for efficient solutions.
- Therefore, one cannot talk about ownership of energy storage by regulated entities in the abstract; instead, positions can be expressed only relative to energy storage applications, or services.
- Energy storage applications deemed to be infrastructure services, i.e., fulfilling services which are today already used by regulated entities with other technologies (e.g., by building a line), should be able to be delivered also with energy storage devices.



Ownership by TSOs and DSOs

EASE position (2/2)

- Regarding the ownership of energy storage by regulated entities (e.g., for the provision of system services) in the absence of competitive supply, i.e. if shown that a market-based service procurement is not feasible, such ownership should be exceptional and on a temporary basis, subject to a periodic review of the situation. Unjustified market barriers for energy storage should be removed.
- And, as a general rule, regulated entities could be allowed to own energy storage in this context only upon the approval of the relevant national regulatory authority. In the longer term, the underlying reason for the market failure should be identified and properly addressed.



Level playing field

- “Clean Energy for All Europeans” proposal for a revised Electricity Directive:

*“Member States shall ensure that their national legislation does not unduly hamper cross-border flows of electricity, consumer participation including through demand-side response, investments into flexible energy generation, **energy storage**, the deployment of electro-mobility or new interconnectors, and that electricity prices reflect actual demand and supply”*

- Identifies Energy Storage as a system element important for cross-border electricity flows
- Implies the elimination of all wholesale and retail price caps



Ancillary Services Procurement (1 / 3)

- “Clean Energy for All Europeans” proposal for a revised Electricity Directive:

“Unless justified by a cost–benefit analysis, the procurement of non–frequency ancillary services by a distribution system operator shall be transparent, non–discriminatory and market–based ensuring effective participation of all market participants including renewable energy sources, demand response, energy storage facilities and aggregators, [...]”

- This and similar provisions establish market–based procurement of ancillary services, including the participation of energy storage



Ancillary Services Procurement (2 / 3)

Creating a level playing field for Energy Storage

- System services procurement currently does not occur according to market based conditions in all EU Member States.
- This leads to a **higher cost for the consumer and discrimination against technologies** that are not allowed to provide these services, even if they would be cheaper and more accurate.
- Example: In Italy, frequency control response (FCR) procurement is **not** market based, increasing the cost of FCR services for the consumer.
 - According to RSE, one Italian coal plant would save €1.7 m/year by providing the service with Energy Storage, such as batteries.
- EASE calls for market-based procurement of ancillary services, as proposed in the recast Electricity Directive, but underlines that **long-term contracts should be possible to ensure investment security**



Ancillary Services Procurement (3/3)

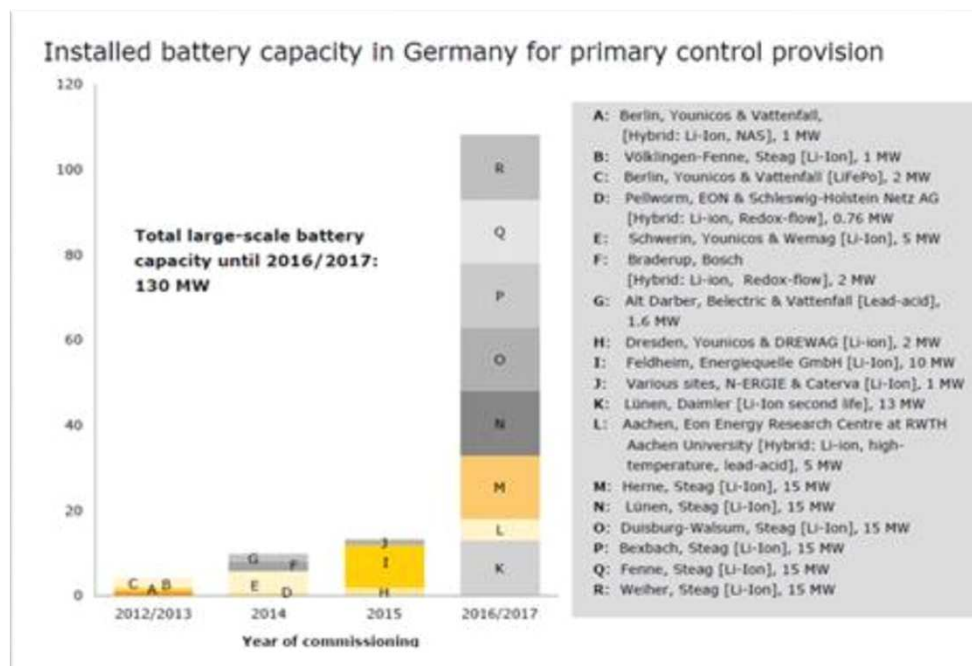
Frequency Regulation With Batteries

The provision of frequency regulation is already a viable market in Europe:

- Strong demonstration efforts, first commercial projects
- The size of the market is still to be determined
- Remuneration and possibility of stacking multiple services on one device need to be discussed?



Concept Grid: frequency regulation with batteries (Source: Saft)



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Unwarranted Network Charges

- “Clean Energy for All Europeans” proposal for a revised Electricity Regulation:

*“Charges applied by network operators for access to networks, including charges for connection to the networks, charges for use of networks, and, where applicable, charges for related network reinforcements, shall be transparent, applied in a non-discriminatory manner [...]. In particular, they shall be applied in a way which [...] does not discriminate against **energy storage** [...]”*

- Identifies Energy Storage as a system element that should be specifically subject to non-discrimination in network charging policy



Technical Standards

- “Clean Energy for All Europeans” proposal for a revised Electricity Regulation:

“The Commission is empowered to adopt delegated acts in accordance with Article 63 concerning the establishment of network codes in the following areas:[...]”

(n) demand response, including aggregation, energy storage, and demand curtailment rules”

- Foresees the development of a network code on energy storage access conditions



“Clean Energy for All Europeans” Package

- Energy storage features strongly across the market design reforms
- Policy advances proposed by the European Commission should be solidified with support in the European Parliament and Council
- Amendments could be proposed to strengthen position of energy storage, e.g.,
 - Separate asset class
 - Ownership linked to application/service type not as derogation
 - Implementation of scarcity pricing and congestion pricing
- Policy advances must also be complemented by new technological developments to exploit the full potential of energy storage.



European Energy Storage Technology Development Roadmap Towards 2030

- In 2013, EASE and EERA published a joint [European Energy Storage Technology Development Roadmap Towards 2030](#)
- The roadmap describes the future needs for energy storage in Europe, identifies the gaps between the current potential and technology development goals, and makes recommendations for R&D and market design policies to support the development of energy storage
- In 2016–2017, EASE and EERA updated the roadmap to reflect:
 - Technological developments since 2013
 - Evolving R&D needs
- The roadmap will inform EU R&D funding priorities for energy storage





EASE–EERA Roadmap Consultation Workshop

- After the public consultation, [a workshop will be held on 15.03.2017 in Brussels](#) to discuss the inputs received.
- Prior to the workshop, participants will receive the roadmap document containing all comments, suggested changes, and edits.
- The workshop will give participants an opportunity to discuss questions raised during the consultation and solve any disagreements between stakeholders.
- The workshop will also give an opportunity to brainstorm about how to promote R&D for energy storage and improve the competitiveness of the EU storage industry
- After the workshop, the final roadmap draft will be prepared for publication.
 - Participants can register at the EASE website: ease-storage.eu



Thank you for your attention.

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