EASE

European Association
for Storage of Energy

ACTIVITY REPORT 2011 - 2012

CONTENTS

European Association
for Storage of Energy

THE EUROPEAN ASSOCIATION FOR STORAGE OF ENERGY ...

... is the **voice of the energy storage community**, actively promoting the use of energy storage at pan-European level since 2011

... represents the common interests of European utilities, suppliers, TSOs, DSOs, consultancies and research centres **active along the entire energy value chain**

... actively supports the deployment of energy storage as an indispensable instrument to **improve the flexibility of** and **deliver services to the energy system** with respect to the European energy and climate policy

... is a European platform for **sharing and disseminating** energy storage-related information

... ultimately aims to support the transition towards a **sustainable, flexible and reliable energy system** in Europe

Berlaymont Building - European Commission in Brussels

"The European Commission acknowledges that energy storage is especially suitable in providing numerous services along the energy value chain"

"It is clear that progress in the technology for energy storage and its integration in the European energy system is crucial"

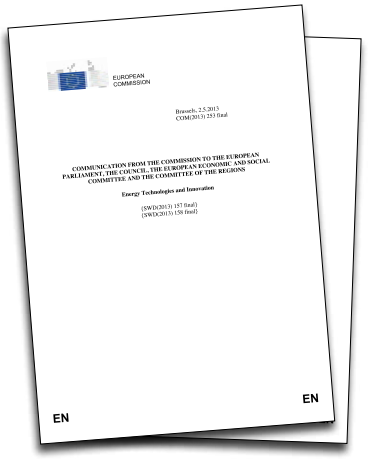
The energy system is the backbone of our modern society. While energy consumption may go down in the future, we will not become less dependent of it. We must therefore ensure sustainable, secure, safe, competitive and flexible access to energy in Europe in the short, medium and long term.

The European energy strategy for 2020 has embarked the EU on an energy revolution towards a low carbon economy and is producing significant results. It has also brought focus and action: barriers to renewable energy are being removed, infrastructure is being developed and the necessary support is being provided. However we need more renewables, more clean technology, more investment in networks, more integration, more energy efficiency. All of this means more growth, more jobs, more power and security to Europe's consumers and industry. The Energy Roadmap 2050 helps us to pursue these goals. It helps us to understand the course we want

FOREWORD BY COMMISSIONER GÜNTHER OETTINGER

to follow over the coming decades, and what this means for investors, our strategy and citizens. It also offers greater certainty to our international partners, including our suppliers.

As the Energy Roadmap 2050 has confirmed there is no way we can achieve our long-term objectives without further strong growth of renewables beyond 2020. Our electricity grid will therefore have to adapt to allow an increasing supply of variable generation and to bring more flexibility into the system. Here, we should not only think of building new conventional back-up plants, but also using other renewable back-ups, enabling demand response through deployment of smart grids and ensure more storage capacity in the system. The European Commission acknowledges that energy storage is especially suitable in providing numerous services along the energy value chain. Our view on technology & innovation in the energy sector was presented in the Communication of 2 May 2013.


EUROPEAN COMMISSION

Brussels, 2.5.2013
COM(2013) 253 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Energy Technologies and Innovation

{SWD(2013) 157 final}
{SWD(2013) 158 final}

EN

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When setting priorities it is crucial to look at the whole energy system: the integration of individual technological developments should be assessed together with its impact on the whole energy system, being the production, transmission, distribution and use of energy. A system approach means going beyond the existing divisions between energy sources and end uses, and should therefore exploit synergies between sectors. This means that apart from research, our network infrastructure needs to undergo an ambitious program of modernisation implying, among others, the roll-out of smart grids, innovative storage technologies and their integration in the European energy system. It is clear that progress in the technology for energy storage is crucial. I would like to congratulate the members of EASE on creating an association uniting the relevant actors working on energy storage. Together with other activities, your association contributes to the EU's needed energy system transformation. Thank you and all the best for the next steps!

Günther Oettinger

"We have achieved remarkable results in a short period and we intend to continue on this productive path for the coming years!"

WELCOMING WORDS BY EASE PRESIDENT BERNARD DELPECH

The awareness that energy storage is essential to establish a secure, decarbonised energy system in line with the European energy ambitions grew fast over the last few years. This need and its acknowledgement on the European level resulted in the creation of the European Association for Storage of Energy.

EASE's purpose is multifaceted. Showing the value of energy storage is at the core of its *raison d'être*. Consequently, EASE is becoming the reference for energy storage-related information in Europe.
This ambition is taking shape thanks to our broad expertise: we are a comprehensive association representing utilities, manufactures, Transmission and Distribution System Operators, start-ups, research centres and consultancies. The common corpus of competences and knowledge that has been consolidated so far has already proven to be valuable for the European general interest. The fact that the association is technology neutral has played an important role to these contributions.

Considering that energy storage will be a crucial part of the future energy system and given the wide range of existing technologies, EASE also advocates the urgent need for research, development and demonstration funding. A stimulating environment will bring two significant advantages: firstly, it will encourage the implementation and therefore demonstration of energy storage technologies and multiplicity of services provided. Secondly, it will boost this fairly new and strategic European industry sector, keeping it an European industrial leader and entail positive consequences in terms of technology leadership and export, competitiveness and job creation.

Finally, EASE actively encourages a European market design that gives security for developers and investors, allowing a fair economic value for the services energy storage can provide.
Such an appropriate market design based on market solutions is necessary to ensure an adequate return on investment.
This will in turn lead to the much needed roll out and sustainable deployment of energy storage.

Energy storage often raises a lot of questions. Therefore a chapter of this report is dedicated to answer the most frequent ones. To give a thorough understanding of EASE, you will be guided through the first steps of its existence: you will be introduced to the way EASE works, the most important milestones of 2011 and 2012, as well as different activities EASE undertook in that period and, of course, its members.

In conclusion, I would like to thank the EASE Members, in particular all the founding companies which managed to implement the necessary tool in order to achieve their vision regarding energy storage. I also want to thank the participants of the working groups and the respective chairmen of the Technology and Strategic Committee and Communication Committee. Mr Erik Hauptmeier and Mr Michael Lippert as well as the secretariat have been very committed and delivered valuable work since the creation of EASE in September 2011. We have achieved remarkable results in a short period, but at the same time it is clear that much remains to be done and EASE intends to continue on this productive path for the coming years!

Bernard Delpech

ENERGY STORAGE

E.ON, Electrolysis Container
Power-to-Gas Pilot Plant Falkenhagen

TDK, Battery Modules in racks

Saft, Containerised Lithium-ion Energy Storage System, 1MW

INTRODUCTION TO ENERGY STORAGE

Patterns of energy supply and consumption are changing rapidly. The main factors of this evolution are a fast increasing rise of intermittent renewable energy sources and distributed generation, changing market regulations and stringent environmental targets. Given this scenario there is a considerable pressure on stakeholders to evolve in order to meet these new demands.

Energy storage can deliver a number of strategic services both on the regulated and deregulated side of the power business, addressing five major challenges:

1. balancing demand & supply
2. managing transmission & distribution grids
3. the increasing need for energy efficiency
4. promoting demand side management
5. contributing to competitive & secure electricity supply

But how does it work?

Energy storage devices are 'charged' when they absorb energy, either directly from renewable generation devices or indirectly from the electricity grid. They 'discharge' when they deliver the stored energy back into the grid. Charge and discharge normally require power conversion devices, to transform electrical energy (AC[1] or DC[2]) into a different form of electrical, chemical, electrochemical, mechanical or thermal form of energy.

There exist numerous storage solutions, which reflect the different technical requirements depending on whether a larger number of small, local storage facilities or a smaller number of large, central facilities are to be used.

[1] Alternating Current
[2] Direct Current

FIAMM, Battery Energy Storage System: Oasi ONE

The two main parameters to differentiate energy storage solutions are:

- Power: can reach from a few W up to hundreds of MW for centralised bulk energy storage devices

- Time: storage may perform charge or discharge functions over milliseconds, a few seconds or minutes (e.g. for grid services like frequency stabilisation), minutes to a few hours (smoothing or time shift of renewable generation), up to days and weeks (balancing long term fluctuations in generation and consumption)

Multiplying power by time delivers the capacity or energy content of the storage device.

E.ON, Pumped Hydro Plant: Waldeck Basins

FIAMM, Battery Energy Storage System: Energy Spring

Saft, Residential Lithium-ion Energy Storage System with Synerion Modules, 11kWh

Glen Dimplex, Home Heat Storage System: Cylinder Quantum

TECHNOLOGIES

EASE supports all energy storage technologies and believes that storage needs to be addressed agnostically. Different energy storage systems - centralised and decentralised – consider different technological possibilities, which EASE organises in 5 energy storage classes: chemical, electrical, electrochemical, mechanical and thermal.

The list intends to be illustrative rather than exhaustive.

EASE is developing Technology Descriptions to explain the basic principles of the different technologies. They will be published in the course of 2013.

Chemical energy storage

- Hydrogen
- Synthetic Natural Gas

Thermal energy storage

- Heat (hot water/PCM[4])
- Molten Salt (Heat/CSP[5] thermal)
- Packed-bed Heat Storage
- Smart Electrical Thermal Storage

Electrical energy storage

- Capacitors
- SMES[3]

Electrochemical energy storage

Classic Batteries	Flow Batteries
Lead acid	Vanadium Red-Ox
Lithium-ion (Li-Ion)	Zinc bromine (Zn-Br)
Lithium-ion polymer (Li-Polymer)	
Lithium–Sulphur (Li-S)	
Metal Air	
Sodium-Ion (Na-Ion)	
Sodium-Nickel-Chloride ($Na-NiCl_2$)	
Nickel – Cadmium (Ni-Cd)	
Nickel – Metal Hydride (Ni-MH)	

Mechanical energy storage

- Fly Wheels
- Adiabatic Compressed Air
- Diabatic Compressed Air
- Pumped Hydro
- Pumped Heat Electrical Storage
- Compressed Storage of Liquid Air

[3] Superconducting Magnetic Energy Storage
[4] Phase-change material
[5] Concentrated Solar Power

Glen Dimplex, Home Heat Storage System: Quantum

Saft, Battery Energy Storage System

FIAMM, Sodium Nickel Technology: Battery ST108v for residential application

APPLICATIONS

Energy storage can be useful in many ways to the energy system. It can be integrated at different levels of the electrical system: from power generation, transmission and distribution to the costumer. The final consumer plays an important role in the future energy storage landscape through ownership of devices either domestically or through vehicle-to-grid technologies.

For illustration and without being exhaustive, wind power generation can benefit from energy storage applications as it:

- Improves reliability of production-planning and output forecasting
- Optimises integration of wind generators into the medium voltage grid at their point of connection
- Alleviates grid disturbances in regions of high wind penetration, e.g. when generation stops abruptly
- Stores massive wind energy in times of excess production, avoiding curtailment

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

MAIN ENERGY STORAGE APPLICATIONS

Adding value along the energy system

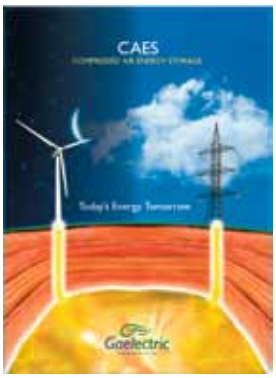
Glen Dimplex, Home Heat Storage System: Quantum

Isentropic, Pumped Heat Electricity Storage Unit

RWE, Home Power Solar: PV-self-consumption via battery storage

ENERGY STORAGE

EDF Laboratory



Gaelectric, Concept Compressed Air Energy Storage

Hydrogenics, Electrolysis Technology

ECONOMIC DIMENSION

Energy storage opens the way for usage of excessive production from renewables when transmission and distribution capacities are limited and prohibit balancing of supply and demand. Depending on demand and supply in a given region storage can therefore be a less costly alternative compared to the construction of additional transmission and distribution infrastructure.

Energy storage represents a solution for increased energy security. Storage complements with back-up fossil fuelled power generation for grid stability. It also allows the power plant to run more smoothly and therefore to be more efficient. In addition, if the stored energy is resulting from renewable energy sources it saves costs directly linked to the reduction of CO_2 emissions from conventional power plants. As many storage technologies are still subject to research and development, their future costs are expected to decrease.

In any case, a specific/consensual estimate of future investments for the different technologies at European level is difficult to predict, taking into account:

- Uncertainty about the share, nature and special distribution of renewable generation
- Uncertainty of the amount of storage. Energy storage is one of the means to stabilise grids, provide flexibility and globally enable the integration of renewables. The optimal mix of technology solutions will materialise under market conditions
- Uncertainty about cost evolution of storage technologies

According to the International Energy Agency, the energy storage capacity needed, at a global level, to mitigate net variations due to variable renewable ranges from 189 to 305 GW from 2010 and 2050[6].

At present, EASE is investigating different coherent and comprehensive business models for different storage users. Besides arbitrage, one can consider the following examples:

- Producers of (renewable) energy: energy storage can prevent revenue losses from curtailment
- Grid operators: by providing peak shaving services, energy storage can avoid or defer grid upgrades and substitute existing grid services (ancillary services) in a more cost effective manner
- End users of electricity: storage can enhance the value and usage of locally produced energy (e.g. rooftop PV) and/or avoid purchase of electricity during peak hours
- Aggregators of storage services can benefit from several of the above value streams

Ultimately it is important to note that some storage, due to its cross-sector nature, will also affect well-established markets such as the gas market (e.g. power-to-gas), local heat markets (e.g. heat storage), and the transportation market (e.g. electric mobility, fuel cells). The cross-sector ability goes even beyond mere storage and recovery of electricity, and leads to a reduction of carbon emissions in other energy consuming sectors

[6] Inage, S. (2009). Prospects for Large Scale Energy Storage in Decarbonised Power Grids. Paris: International Energy Agency.

TDK, Lithium-ion cells

Fraunhofer UMSICHT, Redox Flow Battery Lab

CENER, Flow Battery

CENER, Flow Battery

RESEARCH & INNOVATION

There are multiple technologies being developed capable of delivering different services, yet some of these energy storage technologies are still in the early stages of development. Whilst innovation in storage technologies (performance, cost, materials) is necessary in the long term, the most important area of RD&D[7] work is to demonstrate the technical feasibility of storage solutions in different power and energy applications and their (potential) competitiveness over conventional solutions.

To enable the development of energy storage EASE gathers relevant actors (industry and academics) to compile and contribute to the necessary information that policy makers need to shape future research agendas.

[7] Research, Development & Demonstration

Energy storage is subject of shared interest among several existing European initiatives such as European Industrial Initiatives, Public Private Partnerships, European Technology Platforms and the European Energy Research Alliance. The EU and Member States need however to further support RD&D of energy storage through ad hoc policies, financial support and industry lead initiatives if this technology should become a success story.

Hydrogenics Technology: Membrane Electrolysis

EDF, NAS Battery Battery System Installation

Battery installation, Herne, Germany

Hydrogenics Workshop

EUROPEAN CONTEXT: THE EUROPEAN ENERGY AND CLIMATE STRATEGY

In December 2008, the European Parliament and the European Council agreed upon the so-called Climate and Energy Package. It became law in June 2009. The legislative package put in place what is collectively known as the "20-20-20" targets, composed of two binding targets and a non-binding one on energy efficiency:

- A reduction in EU greenhouse gas emissions of at least 20% below 1990 levels by 2020
- Increasing the share of renewable energy to 20% in EU's final energy consumption by 2020
- Improving the EU's energy efficiency by 20% by 2020 compared to business as usual

The core of the package comprises complementary legislation which is of utmost importance for the power industry, from generation, transmission and distribution to consumption.
In December 2011, the European Commission published its Energy Roadmap 2050. In this context, it is important to point out that this Communication, although providing important analysis on long term views for the energy policy based on different energy mix assumptions does not claim to define the future.

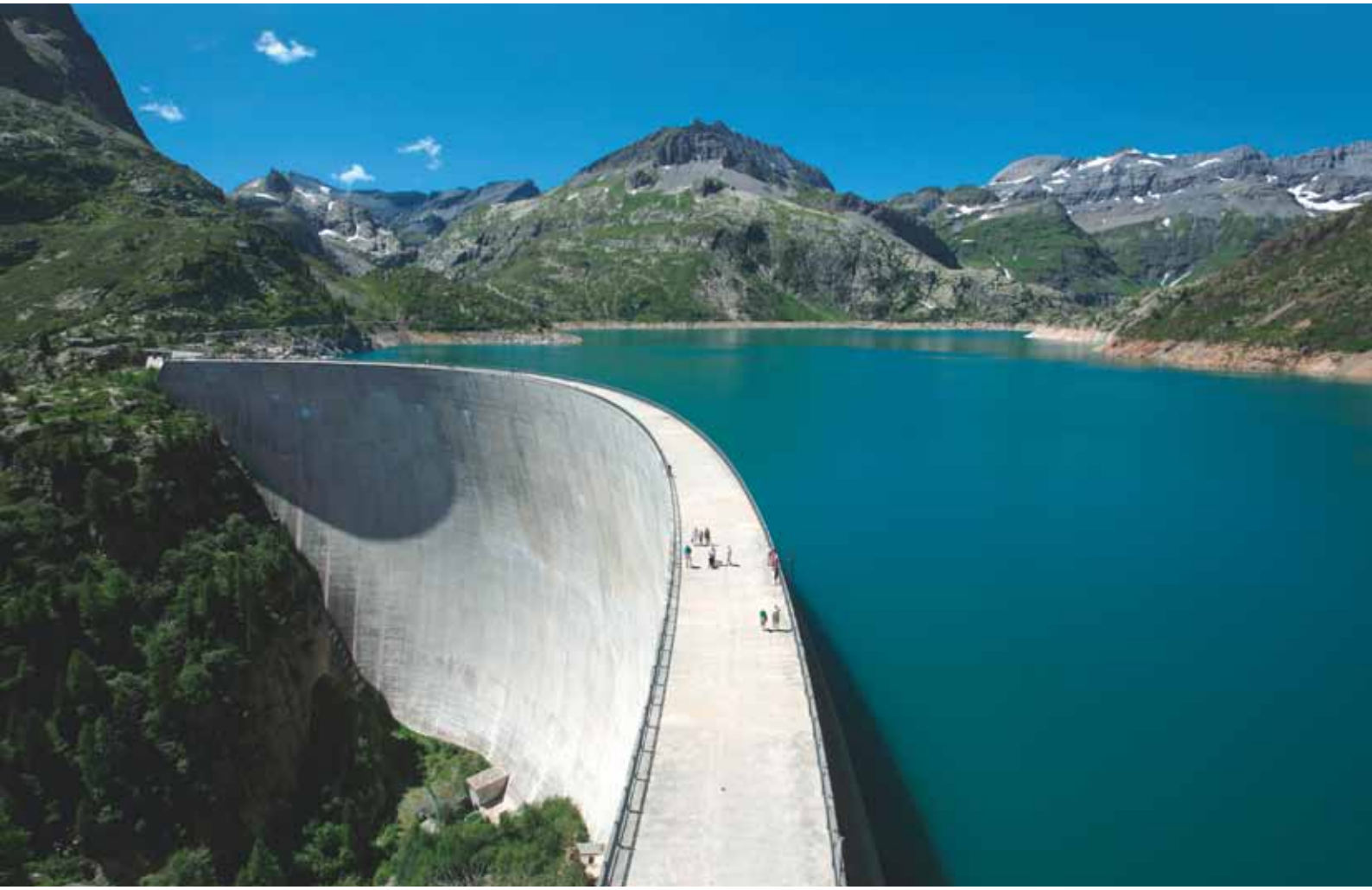
In all scenarios of the Roadmap, the share of renewable energy sources in gross final energy consumption will achieve at least 55% in 2050. Switching to renewable energy will inevitably lead to a situation in which, from time to time, generation will largely exceed demand or vice versa, with specific concerns on transmission and distribution networks.

Energy storage is especially well suited to respond to this challenge and to ensure a continued security of energy supply at any time. This is why the European Commission's Energy Roadmap 2050 recognises the vital role of energy storage technologies for a progressively decarbonised European energy system.

With binding targets for 2020 and political aims for 2050, policy and RD&D goals for 2030 will help to ensure a degree of reliability, on the short, medium and long term, necessary for adequate investments in the energy sector.

Siemens,
Siestorage,
Modular Energy
Storage System

Alstom, Variable Speed Pumped Hydro plant, Nant De Drance, Switzerland



Alstom, Pumped Hydro Plant, Alqueva, Portugal

MARKET DESIGN

The challenges are numerous and the legal framework must take this in to consideration. It must allow an open but fast business case development.

The European energy system is designed in such a way that existing actors cannot capitalise on all benefits that energy storage delivers to the whole system. They can only access some shares of it due to, among others, unbundling. EASE has therefore developed 7 high level recommendations and continues to work on recommendations to enhance the economic viability of energy storage:

- EASE recommends a legal framework for energy storage at EU level to allow grasping all the added value energy storage can deliver, bearing in mind that the completion of the European single market for energy is crucial. A leeway for national approaches should be incorporated, as long as they do not create market distortion.
- EASE believes that energy storage constitutes a special and important asset of the complete energy value chain. Therefore the current levy structures (grid fees, taxes or similar) may not hinder the integration of energy storage.
- Storage devices can render services to the regulated and non-regulated part of the energy system. In providing such services, market based solutions should be preferred whenever possible.
- EASE believes that energy storage gives an added value on different levels in the energy system. Therefore the operator of such devices may differ. The market design could also allow specialised storage operators to emerge, as long as this does not trigger market distortion.
- EASE recommends that potential future capacity markets/payments must be shaped in such a way that without discrimination every energy storage technology should be eligible to participate, if able to fulfil the requirements.
- EASE reminds that storage technologies must be considered comprising its capabilities in sector export (e.g. Power-to-Gas, hybrid electric vehicles, heat storage...). Given the important consequences for the markets involved, EASE reminds that an integrated approach is advisable.
- EASE believes that adequate financial support for Research, Development and Demonstration must be made available on EU level to allow grasping the full benefit that energy storage technologies can bring to the energy system.

OUR MEMBERS' VOICES

"Opportunity to bring technology expertise in a regulatory environment. Contribute with real business cases in shaping the future major market design."

"Relevant knowledge, targeted influence, all in real time!"

"EASE is our gateway to the European Commission and other European energy storage stakeholders."

"Being at the cutting edge of storage related technologies and policy with the chance to even shape it a little bit."

"Opportunity to exchange on storage issues (tech, econ, etc.) with EU-colleagues and closely follow/ contribute to EU policy making with regard to storage."

"The choice to interact and exchange best practices with EASE Members, especially in the Working Groups."

"Clarify the role of storage in the energy system.

Exchange with different players on this issue.

Stimulate the development of new low cost storage technologies."

"The membership of EASE provides a thorough insight of the energy storage sector, numerous networking opportunities with key stakeholders and finally an opportunity to impact European policy on energy storage."

"Energy does not follow political borders and EASE is providing a pan-European view on pan-European energy and storage issues."

"Energy storage is a diffused benefits' story. It will be a challenge to monetise the value it creates without proper regulatory policies in place; EASE is a key vehicle to get those established at EU level."

"Paving the way for storage at EU-level: regulations, awareness,...

Participate in techno-economical analysis of applications/business cases."

EASE STRUCTURE

The General Assembly, composed of all EASE Members, is the supreme authority of the association. It appoints the Members of the Executive Board, which implements the adopted policy and work programme. The Committees are working bodies, established to reply to the association's defined work programme.

EASE's President oversees the implementation of the decisions taken by the General Assembly and Executive Board and strives for the increased impact of the association. He is assisted in his responsibilities by the Vice-Presidents.

The EASE Secretariat, based in Brussels, is in charge of the daily work of the association and maintains its internal and external relations.

Elected Positions

President
Bernard Delpech
(EDF)

Vice-President
François Bouchon
(Saft)

Vice-President
Jillis Raadschelders
(DNV KEMA)

Vice-President
Klaus Peter Röttgen
(E.ON)

Treasurer
Hugh Logue
(Gaelectric)

Secretary General
Patrick Clerens

Organisation Chart

General Assembly
Bernard Delpech
(EDF)

Executive Board
Bernard Delpech
(EDF)

Secretariat
Patrick Clerens

Technology & Strategy Committee
Erik Hauptmeier
(RWE)

Communications Committee
Michael Lippert
(Saft)

First EASE Executive Board meeting, September 2011

THE FOUNDATION OF EASE

The creation of EASE results from an initiative of the European Commission, looking for a consensual vision of the roles, technologies and potential applications of energy storage within the frame of EU Energy and Climate policy. Following on from an Energy Storage Task Force launched by the European Commission in 2009 and the results of the final workshop, a group of European leading players in the energy sector, including manufacturers, utilities and academic bodies, decided to come together and established the European Association for Storage of Energy in Brussels in September 2011. The 13 founding members of EASE are Alstom, DONG Energy, EDF, EnBW, Enel, E.ON, GDF SUEZ, Hitachi Power Europe, KEMA[8], RISØ[9], RWE, Saft and Siemens.

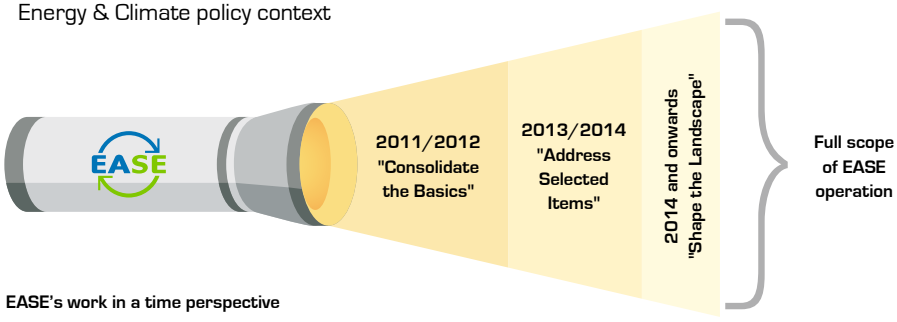
EASE has been created to provide a single, coherent body of competence and guidance that brings together numerous different groups currently working in the energy storage field.

[8] Currently DNV Kema
[9] Currently DTU

The main goal is to build a platform for sharing and disseminating knowledge and information in order to provide a reference frame for state-of-the-art technologies, applications and know-how, available to internal and external stakeholders. Through such a platform EASE further aims to:

- Increase awareness and knowledge of European industry, academics and EU officials regarding the added value for energy storage technologies and applications
- Stimulate the development of innovative energy storage technologies and energy storage uses
- Foster the European implementation of energy storage technologies in the Energy & Climate policy context

The association represents the most innovative and active European players in the energy storage arena. It promotes and supports analysis and evaluation of the benefits of utilising energy storage in the broader energy system. For EASE to be able to provide valuable information, the available knowledge and expertise of these European companies needed to be consolidated and agreed upon. In order to achieve this goal a full scope working programme and a corresponding organisational structure was set up which adapted according to the young and evolving association's requirements and needs.



EASE's work in a time perspective

TECHNOLOGY & STRATEGY COMMITTEE

Technology & Strategy Committee chaired by Erik Hauptmeier (RWE)

Working Group on Technology Facts
chaired by Torsten Buddenberg (Hitachi Power Europe)

Working Group on Segmentation
chaired by Gregory Fayet (EDF)

Working Group on Applications
chaired by Christian Folke (E.ON)

Working Group on Demand
chaired by Allan Schrøder Pedersen (DTU)

Working Group on Scenarios
chaired by Raquel Garde (CENER)

Task Force on Market Design chaired by Patrick Clerens (EASE secretariat)

Task Force on Energy Storage Road Mapping chaired by Allan Schrøder Pedersen (DTU)

A Technology & Strategy Committee was set up to handle technological, economical and regulatory issues. According to the main areas of concern different Working Groups were established. During EASE's first year the following questions were addressed in the respective Working Group (WG):

- **WG1: Technology Facts**
  What relevant and consensual information on storage technologies and its basic principles exist in EASE?

- **WG2: Segmentation**
  How can storage applications be sensibly identified and clustered?

- **WG3: Applications**
  How can the different applications be assessed using a simple EASE proprietary scheme in a given system?

- **WG4: Demand**
  How much storage is needed in any given system configuration at any given time?

- **WG5: Scenarios**
  What are the most probable pathways of system evolution and how does storage fits into them?

Complementary to these WGs, which have a permanent character, Task Forces can be established to tackle more specific questions. They have an ad hoc basis and can either be dissolved once an in-depth answer has been provided or evolve into a Working Group if needed. In 2011-2012 several Task Forces (TF) were established:

- **TF on Market Design.** Which market design enables effective and smooth integration of storage? Which market barriers exist?

- **TF on Energy Storage Road Mapping** to develop a common position on the needs for energy storage technology development.

COMMUNICATIONS COMMITTEE

Communications Committee
chaired by Michael Lippert (Saft)

Working Group on External Communications
chaired by Maike Dupont (E.ON)

Working Group on Events
chaired by Annette Titzmann (Alstom)

Working Group on Stakeholders Management
chaired by Michael Lippert (a.i) (Saft)

Task Force on EASE Visual Identity and Website
chaired by EASE secretariat

The Communications Committee was established to disseminate EASE messages and positions in line with the association's objectives and to actively promote energy storage in Europe and worldwide. By diffusing namely the work done by the T&S Committee, the Communications Committee contributes to building a European platform for sharing energy storage related information. The targeted audience consists of:

- The European Institutions, in order to assist them in addressing their current questions referring to energy storage in the overall energy system. By answering these points EASE contributes to a proper alignment of the European R&D agenda and Energy policy
- European associations and industries in the area of energy production, transmission, distribution and storage, in order to ensure a consensual and global approach to integrate energy storage in our electricity system, rather than dealing with single aspects of it in a scattered manner
- A broader audience sharing the interest in the development of a sustainable European energy system

This Committee created several Working Groups (WGs) as well:

- **WG1 on External Communications** defines the communications material for external use and the online media strategy. It's also in charge of establishing media relations.
- **WG2 on Events** defines the contents of the future EASE events and supports the secretariat on organisational aspects.
- **WG3 on Stakeholders Management** supports the secretariat and elaborates EU policy initiatives including action plans and strategies of interest for EASE.

A **Task Force on the EASE Visual Identity and Website** was established to develop both matters. This TF was closed after first launching the new EASE visual identity and then the EASE website.

MILESTONES 2011-2012

European workshop on Energy Storage

The European Commission encouraged the European industry and research community to set up a European Task Force on Energy Storage working towards a shared European vision on the role of Energy Storage in power applications and to identify measures that may be needed by the sector to maximise its contribution in the implementation of the Strategic Energy Technology-Plan towards building the future European energy system.

September 2009

July 2011

EASE pre-Board meeting

The final decisions enabling the foundation of the European Association for Storage of Energy were taken by the 13 founding members.

September 2011

Creation of EASE

Start activities EASE Secretariat.

17 Members

EASE closes 2011 with 17 Members.

February 2012

First common external EASE position: Position on Public consultation on Renewable energy

EASE responded to the public consultation intended to help prepare a Communication on putting the EU's renewable energy policy into relation with the completion of the internal market.

This document was at the same time the **launch of the new EASE visual identity.**

April 2012

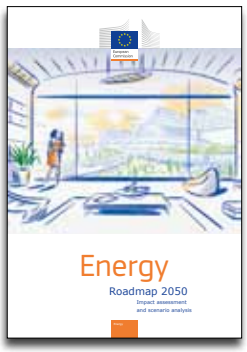
EASE signs MoU with ESA

The Memorandum of Understanding between the Electricity Storage Association, based in Washington DC, and EASE concerns collaborative work between the two associations. This is a first step to enlarge EASE's network.

May 2012

EASE position on Energy Roadmap 2050

EASE members welcomed the European Commission's Energy Roadmap 2050, particularly as this communication recognises the vital role of storage technologies for a progressively decarbonised European energy system.



EASE signs MoU with Eurelectric

The Memorandum of Understanding between EASE and Eurelectric, the association representing the common interest of the electricity industry at pan-European level, is another important step in the cooperation of EASE with major energy players.

Launch EASE website www.ease-storage.eu

The website is a living instrument that will always reflect the association's evolution. It contains, besides internal documents, information about: The association and its members, energy storage technologies and applications, policy work and important EU legislation, publications and events related to energy storage.

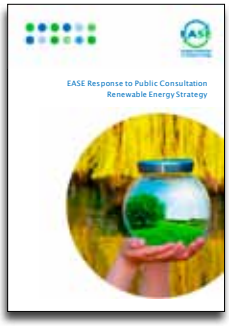
EASE closes 2012 with 32 Members.

May 2012 · **June 2012** · **August 2012** · **September 2012** · **November 2012** · **December 2012** · **32 Members**

EASE Position on THINK project, Topic 8 – Energy Storage

THINK is an FP7 founded project that advised the European Commission (DG Energy) on a diverse set of energy policy topics.

EASE positioned itself being the right channel to gather the necessary expertise in order to deliver a comprehensive roadmap of energy storage technologies and applications when commenting in this capacity on Topic 8: "Electricity Storage: how to facilitate its development and deployment in the EU?"



EASE signs MoU with EUROBAT and Gas Storage Europe

These MoUs are in line with the previous ones, allowing a stronger co-operation on topics of mutual interest.

EASE agrees on its common **High-Level Market Design Recommendations.**
See page 18.

Energy Storage was included in the Horizon 2020 amendments of the European Parliament. The amendment acknowledges the importance of energy storage related research.

EVENTS

EVENTS 2011

• Le stockage d´energies – Quelles perspectives?, Paris, 20.10.2011
Bernard Delpech gave a presentation : L'association européenne du stockage d'énergies : point sur ses actions et objectifs

• Groupe Thematique National Energy, Paris, 5.12.2011
Jean-Michel Durand gave a presentation to introduce EASE

EVENTS 2012

• Electricity Storage Expert Workshop held by the European Commission, DG Energy, Brussels, 19.02.2012
Erik Hauptmeier gave a presentation on Storage Technologies, their needs and added value to the system

• Evaluating the Techno-Economic Feasibility of Energy Storage Systems, Luxembourg City, 29.02-01.03.2012
Jillis Raadschelder presented the main EASE messages

• Energy Storage for Electricity Networks, London, 13.03.2012
EASE was one of the supporting organisations of the event and Patrick Clerens participated as a panel member on the open discussion session "The way forward for energy storage" and presented EASE

• Agoria Renewable Energy Club-Cluster Tweed, Belgium, 29.03.2012
Maria João Duarte gave an introductory presentation on EASE

• EURELECTRIC Workshop on Electricity Storage, Brussels, 25.04.2012
Maria João Duarte participated to the panel discussion on Decentralised Energy Storage

• EUROBAT Forum, Prague, 1.06.2012
Patrick Clerens gave a general presentation on EASE during the Session: Grid/Off-Grid. Why is Battery Storage One of the Key Solutions

• EESC & EERA Conference during the Sustainable Energy Week, Brussels, 18.06.2012
Patrick Clerens gave a presentation on EASE and its activities as well as explaining the relationship between energy storage and public acceptance

• Conference on Grid-Scale Energy Storage, Brussels, 3.07.2012
Patrick Clerens gave a presentation titled "Grid-Scale Energy Storage Regulatory and Market Structures"

• German-Belgian "Energiewende" Symposium, organised by the Belgian and German Embassy, Heverlee, 20.09.2012
Parick Clerens gave a presentation on "Energy Storage Technologies, Challenges and need for R&D and Means of Integration"

• ATEE Colloque Stockage d'énergies: un marché en développement, quelles perspectives pour l'industrie française?, Paris, 26-27.09.2012
Bernard Delpech gave a presentation titled "EASE – Rôle, actions et ambitions"

• K4I Dinner Debate Meeting Europe's Energy Storage Challenge – is Power to Gas the Answer?, Brussels, 13.11.2012
Patrick Clerens gave an presentation on EASE and on Energy Storage (Technologies, Applications, Functionalities)

EASE'S FIRST ANNIVERSARY

6.11.2012

On the occasion of its first anniversary, EASE held the first event in Brussels of what will become an annual tradition. This formal introduction to all stakeholders carried the motto **'Energy storage - empowering the future'.**

Keynote speaker Philip Lowe, Director-General of DG Energy, reinforced that message by expressing the European Commission's strong support to the development of energy storage in Europe.

THE SECRETARIAT

Patrick Clerens
Secretary General

Jean-Michel Durand
Technical Advisor

Maria João Duarte
Policy Officer

Martina Limonta
Policy assistant

Michele Foradori
Policy assistant

PARTNERS

EASE is establishing a network with partners sharing the same goal of contributing to the development of a sustainable energy system.

As a result, EASE cooperates with other national and international associations, related to the field of energy storage, to exchange knowledge, coordinate actions and share best practices.

NATIONAL ASSOCIATIONS

EUROPEAN ASSOCIATIONS

CLOSING BY SECRETARY GENERAL PATRICK CLERENS

European Association for Storage of Energy

Before a baby starts to walk, it must gain a sense of equilibrium and be able to balance all the necessary moves.

It is just the same for an association: bringing together players with sometimes opposing interests but converging overall aims, also requires a specific equilibrium and balancing.

Only thanks to the commitment and dedication of the EASE members growing together was possible. The trust between the very different members, initially built up between the 13 founders, is a pre-requisite for a successful association's activity. Gradually including new members, EASE grew to 32 members by the end of 2012, is a logical consequence since the foundation was laid in an appropriate way.

EASE also had to find its place in the Brussels arena. Building on the support received from the European Commission, a very productive and pragmatic co-operation with the different Commission Services materialised very fast. In fact it already became apparent after only some days of existence. Support for documents in relation with energy storage was given by using the comprehensive knowledge and expertise of the members, even before common positions were formally agreed inside EASE. The replies to the first pubic consultations required a lot of internal compromising, but without losing out of sight the overall EASE aims.

Beside the EU institutions, EASE also coordinated its efforts with other European associations touching energy storage as well as with national associations purely dedicated to energy storage by signing different MoUs.

The next step for EASE was to define a common agreed description of what EASE members felt that would be the reality for energy storage (technologies, applications, markets...). After setting-up the necessary internal structure, with the Committees, Working Groups and Task Forces, EASE was in a position to do so and has now a common basis to build upon.

A lot has already been done, but being a nimble association means also adapting to the new challenges and requirements ahead. Therefore 2013 will see the adaptation of the existing internal organisation in order to focus more on the future need: how to bring energy storage technologies into the market, focussing therefore much stronger than before on specific RD&D needs as well as market design.

So thank you for the support you gave to EASE in the past, this is specifically valid for the European Institutions and the EASE members. I invite you to continue following EASE's work throughout the next years, promoting the added value that energy storage can bring to the whole energy system!

Keep in mind that energy storage is bringing energy from today to tomorrow, while grids bring Energy from point A to point B. Therefore, its role will drastically grow in the next decades!

Patrick Clerens

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