



Electrical Energy Storage Systems

EA Technology

EA Technology: Safer, Stronger, Smarter Networks

EA Technology is a global, independent provider of end-to-end power engineering solutions, supporting customers in managing and operating electrical assets more efficiently, reliably and safely at lower cost.

Established as the UK Electricity Industry's Research Centre in the 1960s and now employee-owned, EA Technology is recognised as a world-leading expert in its field, working collaboratively with partners across the energy, utilities, infrastructure and associated sectors.

With headquarters in the North West of England, EA Technology provides expert consultancy, innovative instruments, skills training and technical services, designed to help customers maximise existing asset performance, enhancing power engineering at all stages of the asset lifecycle, and developing ground-breaking, sustainable solutions for the energy networks of tomorrow.

The integration of new and emerging energy technologies is a key enabler of the Smart Grid and a means to deliver the transition to a Low Carbon energy system.

 For more information, visit www.eatechnology.com



Expertise in Electrical Energy Storage Systems

EA Technology has more than 40 years experience in developing and deploying electrical energy storage systems.

Our early years in this field led to the development of sodium sulphur batteries and ground-breaking electric car developments.

Since the mid-1990s, we have developed a comprehensive portfolio of services relating to electrical and thermal energy storage technologies and systems, their applications and their interaction with electricity systems.

Over the past fifteen years, EA Technology has developed to become an internationally recognised centre of excellence in relation to electrical energy storage systems and their applications. Its client base in the electrical energy storage field embraces such diverse interests as:

- Power Utilities,
- Government Agencies,
- Manufacturing Industry and
- Financial Institutions.

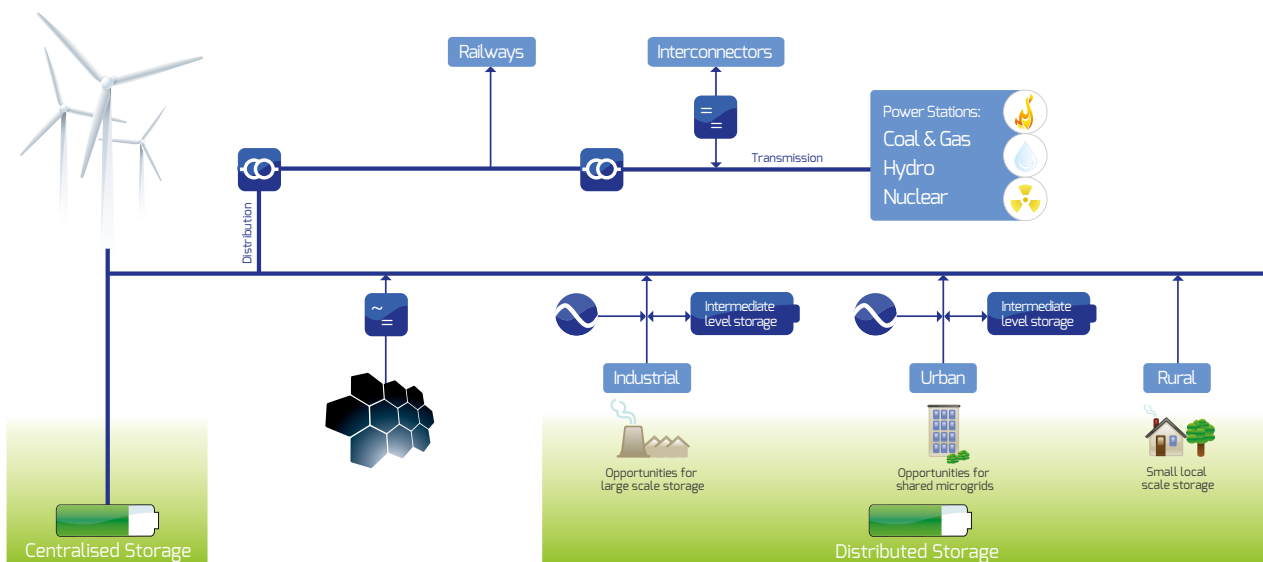


Why Electrical Energy Storage?

Enabling the Smart Grid

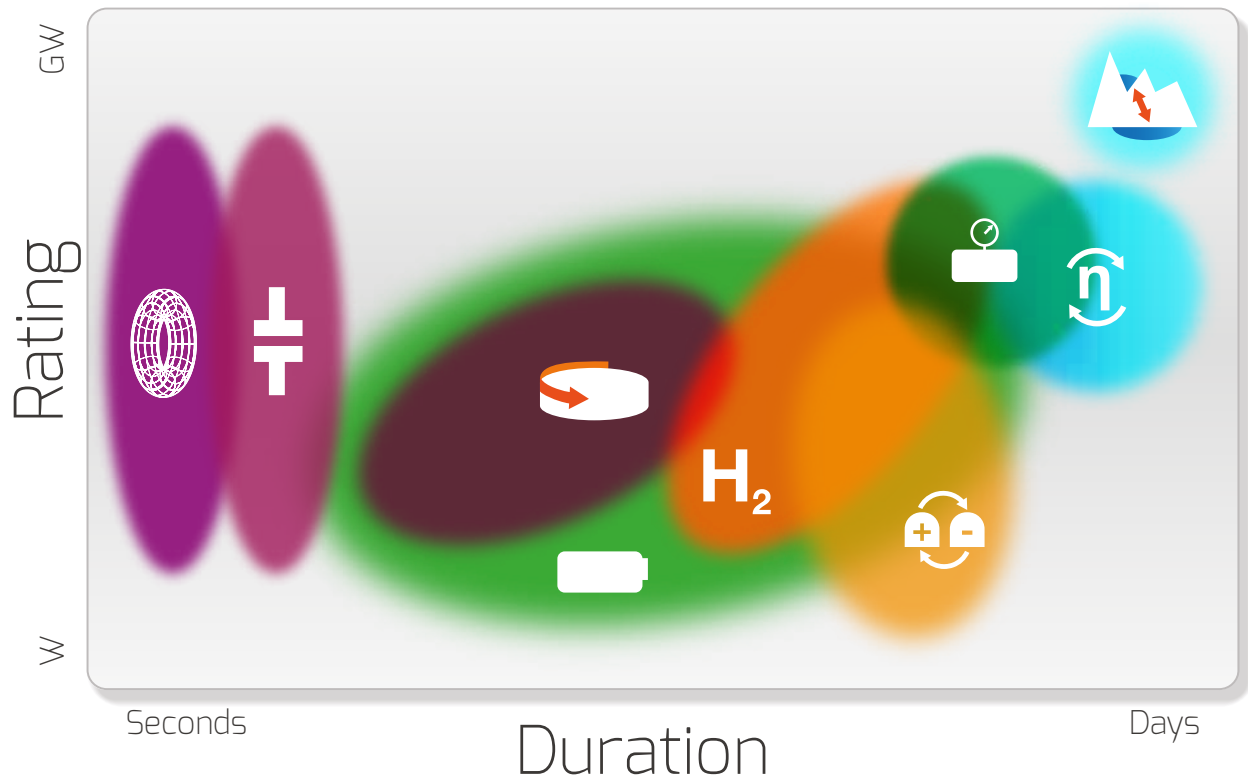
Contributing to Reduced Emissions







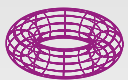


Provide Ancillary Services	<ul style="list-style-type: none"> System balancing Frequency regulation
Manage Thermal Constraints	<ul style="list-style-type: none"> Manage network thermal bottlenecks Alleviate thermal constraints
Manage Voltage Limits	<ul style="list-style-type: none"> Augmenting and replacing reactive power equipment on networks in particular with variable renewable generation
Renewables Integration	<ul style="list-style-type: none"> Matching renewable supply to variable demand profiles
Improve Efficiency	<ul style="list-style-type: none"> Minimise spinning reserve for generating plant
Security of Supply and Power Quality	<ul style="list-style-type: none"> Protecting customers from power sags, spikes and failures
System Balancing	<ul style="list-style-type: none"> Helping network operators to maximise utilisation of existing distribution assets Contributing to the matching supply and demand
Defer Asset Replacement	<ul style="list-style-type: none"> EES may provide better investment return alternative to asset replacement Extend the useful life of existing assets
Peak Lopping Load Leveling	<ul style="list-style-type: none"> Smoothing load profiles to avoid high tariffs



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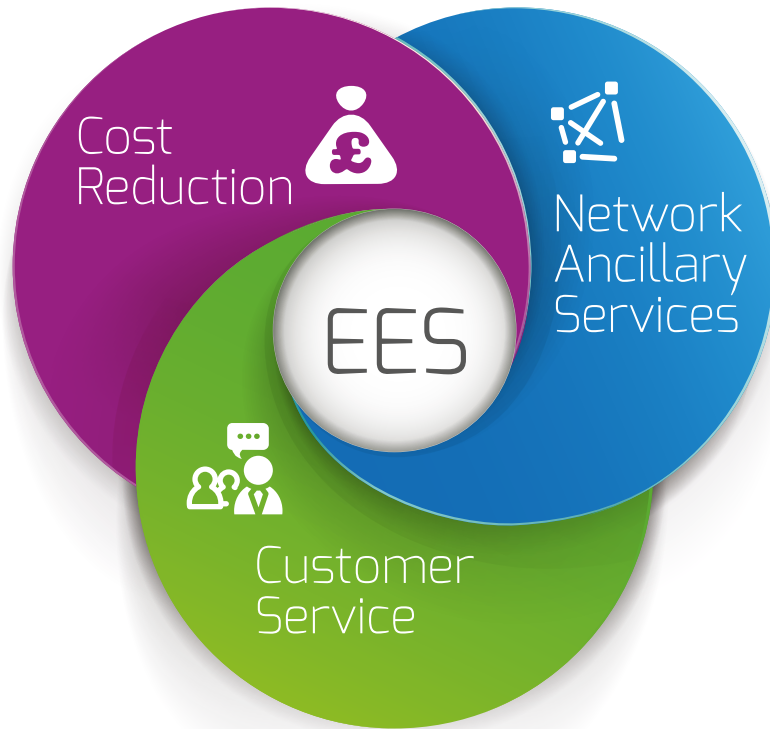
We have experience of all Electrical Energy Storage technologies, which vary in performance characteristics and their applications.



	Pumped Hydro		Capacitors
	Compressed Air		Flywheels
	Redox Flow Batteries		Hydrogen
	Super Conducting Magnetic Energy Storage		Thermodynamic
	Batteries		

Benefits of Electrical Energy Storage

Investors in Electrical Energy Storage have three primary motivators:



Benefits of Electrical Energy Storage include:



Our Capabilities

Our multi-disciplinary team has experience and capability in:

- Project development
 - Concept development, scoping & definition
 - Partner engagement, consortium development & leadership
 - Funding exploration & realisation
- Storage system specification development
- Safety case review, assessment & development
- Procurement support: Review of technical documentation
- Technical, commercial and market assessments of storage systems and technologies
- Electrical energy storage systems application assessments
- Software development
- Modelling and simulation studies
- Project management & delivery
- Technical performance, assessment and evaluation of electrical energy storage systems
- Laboratory and field trials, with associated monitoring and evaluation activities
- Assessment of network connection implications of distributed storage systems
- Organisation, delivery and materials for dissemination and/or technology transfer events



Formed in 2012 by EA Technology, ESOF membership is exclusive and includes all of the UK Distribution Network Operators and TSO.

The forum facilitates sharing of information and experience between member DNOs on the practical aspects of developing and operating electrical energy storage systems.

Members of the Forum are also involved in several Ofgem led, Low Carbon Network Fund projects involving electrical energy storage systems.



Global Footprint

We provide products, services and support for customers in 90 countries, through our offices in Australia, China, Europe, Singapore, UAE and USA, together with more than 40 distribution partners.



Our Expertise

We provide world-leading asset management solutions for power plant and networks.

Our customers include electricity generation, transmission and distribution companies, together with major power plant operators in the private and public sectors.

Our products, services, management systems and knowledge enable customers to:

- Prevent outages
- Assess the condition of assets
- Understand why assets fail
- Optimise network operations
- Make smarter investment decisions
- Build smarter grids
- Achieve the latest standards
- Develop their power skills

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