



**FLEXIBLE ENERGY**  
OVERSIGHT REGISTRATION BODY

*“Protecting consumers and saving lives by ensuring safe, controlled deployment of domestic energy storage systems”*

## Our Mission Statement

We want to see more **consumers** taking advantage of the benefits of renewable energy by using safe and approved equipment and installers. No lives should be lost through poor installations or unsafe Electrical Energy Storage Systems (EESS).

We want to support **Government Agencies** and the **Emergency Services** by providing a central database of EESS.

We will **reduce consumer detriment** and **raise industry standards** by ensuring consumers have access to approved codes of practice.

**Through Flexi Orbs experience in delivering consumer protection schemes we are ideally placed to support policy makers in ensuring the safe deployment of EESS.**

## About the Flexible Energy Oversight Registration Body (Flexi Orb)

The **Flexible Energy Oversight Registration Body (Flexi Orb)** reduces the consumer risks associated with energy storage by operating the Energy Storage Register of domestic energy storage installations. We want to raise standards and increase confidence in the energy storage market.

The **Energy Storage Register** monitors the deployment of domestic energy storage systems through its interactive, interoperable online notification system. The system will operate in a similar fashion to Gas Safe Register as installers registered with Energy Storage Register will be required to notify all energy storage installations.

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## Background

The interest and use of energy storage systems in the UK is set to gain momentum, with battery storage capacity set to increase by a factor of eight from 2017 to 2022<sup>1</sup> with 9,000 Megawatt hours of new capacity added . We are now in the third carbon budget with a target to reduce greenhouse gas emissions by 37% by 2022<sup>2</sup>, meaning that the need to promote and encourage uptake of renewable energy measures will only become more relevant.

Energy storage is the future for over 27 million households in the UK and it comes with excellent benefits:

- Consumers have the power to control their energy supply and demand
- Assists the roll out of electric vehicles as a storage system
- Helps maximise usage of Solar PV, wind and hydro generation
- Helps reduce energy bills
- Opportunity to become energy independent from the grid
- Become part of a network for grid trading and dynamic response
- Potential return on investment within 10 years for energy storage systems

**Currently there is no requirement for an Electrical Equipment Storage System (EESS) to be registered.**

## Recommendations

To ensure consumer safety and confidence an oversight body needs to be established.

This body will ensure that:

- Every EESS installation should be registered, to provide traceability of installed products and ensure high standards of workmanship and redress to consumers
- Every EESS installer should belong to an approved consumer code to ensure high customer service standards and routes of redress
- Government and other key stakeholders recognise the need for regulation around EESS through regulation

This paper will provide arguments for regulations to be brought in to ensure registration and traceability of EESS.

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[https://cdn.shopify.com/s/files/1/2713/8886/files/UK\\_Battery\\_Storage\\_Opportunities\\_brochure\\_Feb\\_2018.pdf?189499213296215353](https://cdn.shopify.com/s/files/1/2713/8886/files/UK_Battery_Storage_Opportunities_brochure_Feb_2018.pdf?189499213296215353)

<sup>2</sup> <https://www.theccc.org.uk/tackling-climate-change/reducing-carbon-emissions/carbon-budgets-and-targets/>

## Regulatory Landscape

Currently the safety of EESS sets within various rules and standards:

- **General Product Safety Regulations 2005** - *A general requirement for products to be placed on the market to be safe*
- **Electrical Equipment Safety Regulations 2016** - *Electrical equipment designed for use between 50-1,000 volts AC or 75-1,500 volts DC must be 'safe', constructed in accordance with principles constituting good engineering practice and conform to specific regulatory safety objectives*
- **Consumer Rights Act 2015** – *Provides consumers with the rights to receive goods that are of a satisfactory quality, safe and as described. Installations must be carried out using reasonable care and skill*
- **The Batteries and Accumulators (Placing on the Market) Regulations 2008** – *Covers the labelling of batteries*
- **Waste Batteries and Accumulators Regulations 2009** – *Only applies to automotive, industrial and portable batteries and concerns their labelling, disposal and recycling*
- **Waste Equipment and Electronic Equipment Regulations 2013**- *Places responsibilities on retailers for taking back and handling waste electrical equipment*

**It is highly recommended that a Statutory Instrument is passed to bring together the rules and regulations. This will provide clarity for installers and consumers as well as ensuring high standards for products and installers.**

## Advantages of regulation of Electrical Equipment Storage Systems (EESS)

- Only safe, approved items will be allowed to be placed on the market and in consumers' homes
- Fire Service can see EESS technology installed at a particular premise if attending an incident
- Registration of those EESS products, so that there is visibility through data and traceability of products and installations. This can help with product safety recalls and support PAS 7100 (The Office for Product Safety and Standards: Supporting better product recalls)
- Allows regulators such as BEIS and OFGEM to have topline data showing deployment and use
- Electricity Distribution Network Operators (DNOs) to have potential to generate data at a micro level
- DNOs are rarely informed of EESS being connected to the grid – which could put a strain on the network. Registration would help DNOs manage the network. Flexi Orb will track all this and automatically complete the G98 or G99 DNO notification
- Safe decommissioning of equipment and compliance with waste regulations –Flexi Orb will send a reminder to the EESS owner and will help them with disposal should the installer or manufacturer not be able to do so (e.g. gone out of business)
- Every consumer will have access to dispute resolution through an approved consumer code, in case there are issues relating to their purchase before, during and after the sale

## Reasons for registration of EESS

### 1. Consumer Safety

The most important aspect of EESS must be that installations in a consumer's home must be safe. In most cases consumers will not be experts in energy installations meaning that they rely on their installer to supply goods that are safe and that the installation will be carried out competently.

Currently there is no requirement for the installations to be registered meaning that there are no lines of traceability for EESS.

If every EESS was registered then manufacturers would be able to contact every consumer if there are any issues with the products or installations, as is the case with vehicle recalls.

**Should there ever be any incidents involving EESS, authorities can take swift action to ensure that unsafe products are removed from consumers home, potentially saving lives.**

### Installer compliance

**Every** installer will be required to be certified by a recognised Certification Body (CB) (such as NAPIT, NICEIC, STROMA etc). CBs can assess the installers' competency and carry out technical inspections in accordance with the installation standard to ensure compliance with building regulations. Currently, CBs are not advised of a specific EESS installation, and can therefore not target technical inspections.

### Incidents involving EESS

There have been several incidents involving energy storage<sup>3</sup>:

In 2013, a Dreamliner 787 at Heathrow caught fire after a short circuit in a battery operated device caused a thermal runaway reaction. The fire caused significant damage in the cabin, partly because the device was located near insulation materials. The fire also resulted in damage to the fuselage. The Heathrow incident was one of a number affecting the aircraft in 2013, problems that were said to have cost Boeing in excess of \$600 million.

Samsung Galaxy Note 7 recalled after devices explode Samsung hit the headlines in 2016 when it recalled 2.5 million Galaxy Note 7 phones after complaints about overheating and phones exploding. In January 2017, Samsung confirmed that the cause of the problems had been the batteries. Direct costs of the recall were estimated at the time at up to £4 billion.

In 2011, a Chevrolet Volt caught fire more than three weeks after a routine side-impact crash test damaged its battery pack. The fire prompted concerns over the safety of using lithium-ion batteries to power hybrids and electric cars. In a subsequent test on electric cars, carried out by the Fire Protection Research Foundation in 2013, fire fighters found they needed a very large volume of

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<sup>3</sup> <https://www.aig.co.uk/content/dam/aig/emea/united-kingdom/documents/Insights/battery-storage-systems-energy.pdf>

water to extinguish battery fires, which kept reigniting. In one example, a battery fire reignited 22 hours after it was thought to have been extinguished.

## 2. Oversight and interoperability

Flexi Orb can facilitate oversight and interoperability of EESS. Interoperability is the capability of two or more networked systems to exchange and readily use information. The key to interoperability is clear, updated information.

Interoperability will be controlled via data capture of deployed systems with the system providing oversight to various bodies who require the information to manage the load capacity of the energy network:

- National Grid
- Energy Networks Association
- Distribution Network Operators
- OFGEM
- BEIS
- Office of Product Safety and Standards

These bodies will be able to have oversight of the network performance leading to increased reliability and a good service from consumers.

## 3. Operation at zero cost to taxpayers

Flexi Orb will be funded through yearly membership fees and job registration fees. This means that there are no costs for the treasury. However, all the organisations listed above will be able to see, at no cost, data they require to ensure a safe, reliable network for end users.

## 4. Cost saving for consumers

Flexi Orb will provide consumers with the right information and support to ensure deployment costs. Successful deployment of EESS should lead to consumers having lower electricity bills over non-renewable solutions. The fuel bill savings are dependent on the individual installation and due to the infancy of EESS deployment, no meaningful data is available.

## 5. Protecting the environment and handling waste correctly

Flexi Orb will help to coordinate the recycling of decommissioned energy storage devices, both stand-alone systems and electric vehicles to ensure that key components (lithium/cobalt) can be used in the supply chain to reduce further deployment costs and reduce dangers associated with degrading devices. Even if the installer has ceased trading, Flexi Orb will help ensure the safe decommission and disposal of any energy storage devices.

## 6. Help reduce fuel poverty and enable access to green energy

Flexi Orb will help create a regulated network that will deliver low cost, zero carbon, flexible energy solutions to end users (consumers). We will also work with the supply chain to reduce issues surrounding the mining of key elements like cobalt.

Flexi Orb will invest 5% of profits into supporting low cost and low carbon energy projects and helping to support unable to pay fuel poverty consumers to enable them to become energy wealthy.

## 7. Future technologies

Flexi Orb will invest 5% of profits into new technologies to support the move towards a decarbonised and flexible energy network (such as lithium batteries that do not require cobalt, flow batteries, hydrogen cell batteries etc.). Renewable energy technology moves quickly, Flexi Orb operates with agility and can quickly and easily work to new technologies as and when they arrive.

## 8. Consumer awareness and education

Flexi Orb has the resources to deliver consumer advice and education alongside existing providers of information to encourage consumer uptake of EESS. We will work with key stakeholders involved in direct access to consumers to promote EESS as a viable and safe option to consumers for reducing their fuel bills, which will help reduce their carbon emissions.

## 9. Full scale registration and notification of EESS

To provide a safe, universal solution Flexi Orb has already begun discussions with:

- Certification Bodies (Certsure and NAPIT)
- The Fire Service
- ENA - Energy Networks Association
- DNOs – Distribution Network Operators
- BEIS – Department for Business, Energy and Industrial Strategy
- Ofgem – Office for the Gas and Electricity Markets
- National Grid
- Manufacturers
- Installers
- Suppliers & Distributors

It is vital that all bodies are agreed that there is a need for EESS to be registered and regulated. Flexi Orb already has agreements with the largest manufacturers (Duracell, BYD, Growatt etc.).

## Conclusions

There are numerous benefits to the registration of EESS which will lead to a greater uptake of EESS and will drive the industry forward.

Potential disasters involving unsafe batteries will be avoided as recalls will be easy to co-ordinate.

The main benefits to consumers are cheaper, greener energy and the ability to feel part of reducing the UK's carbon footprint.

Installers and product standards will be raised through installers being accountable to an oversight body.

Consumers will benefit from the protection provided by an approved consumer code of practice.

Flexi Orb is well placed and resourced to deliver an EESS register, and we already have the support of major manufacturers.

## Next steps

For a register to be truly effective and to ensure a level playing field for installer and manufacturers legislation is required. This will ensure high standards for this new and developing market.

To do this at a minimum BEIS or OFGEM enact a Statutory Instrument that requires:

- All installers of EESS register with Flexi Orb (to register installs and products) and an approved consumer code (to provide comprehensive consumer protection)
- Selling or installing an unapproved device will be a criminal offence, subject to criminal sanctions
- Clear definitions of battery storage
- Waste disposal measures for faulty or expired batteries
- Information on the decommissioning and disposal of EESS
- Reporting on uptake and areas of concerns to BEIS and OFGEM

The Flexi Orb Executive team have vast experience in renewable energy, certification schemes and consumer protection and we are in an excellent position to deliver this solution.