

Policy Analysis – Energy Storage in UK

Introduction

The UK electricity system based on centralised utility scale generation is experiencing considerable change. Pressure is building due to the decommissioning of traditional generating plants, the installation of intermittent generation and the decentralisation of generation.

To meet these challenges, it's necessary to transition towards a smarter and flexible network. One of the main solutions identified is the installation of new advanced Battery Storage Systems, which can be used to:

- Smooth the output from intermittent renewable generation, helping to accommodate further low carbon capacity installation
- Meet the essential increasing needs of Frequency Regulation services and Strategic Reserve by 2021, necessary to avoid blackouts and ensure security of supply
- Provide flexibility benefits to customers of £3-8bn a year in 2030
- Avoid major works and investment into transmission, distribution lines and substations

To accommodate and incentivise the installation of Energy Storage Capacity, BEIS, Ofgem and National Grid are launching a series of framework reforms, presented in this document.

Policy Analysis, Relevant documents

Future Energy Scenarios 2017 – National grid

This yearly report by National Grid (published in July 2017), draws forecasts on the future shapes of energy markets in UK. It outlines an increasing pressure on the system and an increase in Energy storage systems to act as a solution:

- With the increase of intermittent renewable generation from 36 GW in 2016 to 45-110 GW in 2050
- With the increase in peak demand from 60 GW today up to 65-85 GW in 2050
- The need for flexibility of the system will increase dramatically, with Storage one of the keys to meet it
- Storage set to increase from 4 GW in 2016 to 6 in 2020 to 6-9 GW in 2030, plus up to 30 GW to accommodate renewables by 2050.

System Needs and Product Strategy – National Grid

This open consultation issued by National Grid on June 2017 (and concluded on July 2017, with the results due in September 2017) is part of the “Future of Balancing Services” reform package, aiming to revisit the procurement of balancing services.

In the first part, the publication presents the increasing need of balancing services, foreseen to double by 2021. To meet these needs, National Grid is planning rationalise, standardise and improve the current services and open them to market in from April 2018. The services are:

1. Frequency Regulation: merger of current services (mainly EFR and FFR) into standardised auctions from April 2018
2. Reserve: Elimination of obsolete services and rationalisation
3. Voltage Regulation: Opening of the market of new services
4. Blackstart: Opening of the market of new services

A smart, flexible energy system – BEIS & Ofgem

This call for evidence (published in November 2016, with answers and comment published in July 2017¹) represents the first step of Ofgem and BEIS to review the whole regulatory body including Energy Storage systems, with an explicit goal:

“Our policy intent is that undue regulatory, commercial and legal barriers do not prevent the deployment of smart technologies and processes, or new service providers competing in markets. In our work so far, we have looked in particular at how storage and aggregators fit in to current arrangements”

Energy Storage is identified as a strategic resource for the future balancing, security of supply and decarbonization of the UK energy system.

The main barriers identified and under regulation changes are:

- planning process;
- network connections;
- network charging;
- final consumption levies;
- regulatory clarity;

Upgrading Our Energy System, Smart Systems and Flexibility Plan – BEIS, Ofgem

This document published in July 2017 follows the call for evidence published in November 2016, and outlines the actions of the Government to pave the way to new technology providing interactivity and flexibility as Energy Storage.

The actions specific to Energy Storage will be:

- The government will review the current planning process and look to simplify it, including the planning guidance and the national planning thresholds for storage facilities.
- A targeted charging review to rationalise treatment of Energy storage and avoid excessive embedded benefits, double charging and market distortions². New publications are due to follow.

¹ Upgrading Our Energy System - Smart Systems and Flexibility Plan Call for Evidence Question Summaries and Response from the Government and Ofgem

- Amend the Electricity Act of 1989 to include a specific definition for Energy Storage as a distinct subset of energy generating assets
- Ofgem will consult on the form of a simplified generation license for energy storage during summer 2017, in order to exempt them from consumption levies
- The Government and Ofgem are making clearer when storage can co-locate alongside with renewable generation, and its impact with CfD, feed in tariffs and renewables obligation schemes.
- Government will seek to improve the connection process with modifications such as flexible connections
- Government will intervene issuing financial incentives for DNOs to do more to meet their customers' needs

Beyond addressing these barriers, government will invest in catalysing innovation.

Conclusions

Energy Storage Systems Capacity are a key strategic asset for the UK Electricity system. It enables the grid to ensure security of supply, system balancing and enable the transition towards cleaner generation.

The analysis above shows a clear effort from the Government, BEIS, Ofgem and National Grid to pave the way for the installation of Energy Storage Capacity.

The goal is to meet the systems' new needs through leaner permitting procedures with addressing the current electricity market distortions for a more transparent balancing mechanism.

² <https://www.ofgem.gov.uk/publications-and-updates/targeted-charging-review-consultation>