BUILDING BRITAIN'S STORAGE INDUSTRY

MANUFACTURING & EXPORT OPPORTUNITIES AND REA PROPOSALS FOR ENERGY STORAGE AS PART OF THE UK'S INDUSTRIAL STRATEGY

RENEWABLE ENERGY ASSOCIATION

This spring the Government proposed an ambitious Industrial Strategy for the United Kingdom. The Strategy has potential to improve the UK's economic competitiveness, including in areas such as manufacturing and export. In their proposed Strategy, energy was identified as a "key pillar" (along with infrastructure) that would be specifically addressed, primarily through a number of "sector deals."

While the REA is calling for a comprehensive sector deal that spans both bioenergy and clean technologies such as solar, marine, and wind, we're also calling for an energy storage-specific set of policies.

The Government is already making good progress in supporting storage growth. The Smart Systems and Flexibility Plan, launched this spring by Ofgem and BEIS, could significantly alter the way electricity is generated, stored, and traded in the UK. One study for the Government estimates the benefits of a smart energy system to be £17-40bn to 2050, stemming from avoided or deferred network reinforcement, avoided new generation build out, reduced low-carbon generation curtailment, and improved system optimisation. Funding[1] has also been made available for battery storage research and development.

The National Grid is also proposing significant changes to improve grid flexibility with its System Needs and Product Strategy[2]. The Review (consultation closed in August 2017) seeks to harmonise the plethora of incentives and schemes currently in place that are used to balance the grid. Simplification of these schemes can support the growing storage sector and incentivise deployment.

Looking beyond National Grid's Review and the Government's Flexibility Plan, a specific sector deal as part of the Industrial Strategy could provide targeted support for the storage sector. Having consulted experts and REA member companies operating across the country, we have identified a number of policy changes that could be included in a storage sector deal.

Key points for an energy storage sector deal in the Industrial Strategy

Note: no storage sector deal has been agreed and there is no guarantee that one is put in place, these are REA policy suggestions.

- Swiftly implement the Smart Systems and Flexibility Plan, including key elements such as the separate definition, clarification on how storage interacts with existing renewables schemes such as the Renewables Obligation (RO), and the license for energy storage,
- Offer Enterprise Investment Scheme and Enhanced Capital Allowances tax support for storage devices, both of which are well understood and liked by investors,
- Increase support through, and promote access to, the existing R&D tax credit scheme. The ability to claim back funding on investment, or receive tax rebates while growing, has provided valuable support to early stage innovation projects, especially while operating pre-revenue,
- Establish a funding mechanism beyond the innovation stage, by offering early stage equity backing or debt support. The UK Guarantees Scheme, as promoted within the Industrial Strategy Green Paper, should be extended to decentralised energy storage systems,
- Demonstration Funding and support for risk-taking SMEs. This is effective in realising efficiencies during early projects as well as beginning to establish supply chains,

- Support innovative projects in seeking export opportunities. This can be done for example by supporting trade associations to facilitate linking of UK industries with foreign markets. Grant schemes that trade bodies can apply for to host international delegations could be a means of achieving this,
- Infrastructure/export guarantees for energy storage companies,
- Fund standards work to ensure joined up and overarching standards in place,
- Tax breaks or other assistance for UK manufacturing / supply chain activity,
- Research into further storage technologies alongside lithium-ion batteries, including flow batteries, heat batteries and uses for second-life EV batteries,
- Further research into IT systems that allow for sophisticated local energy system balancing and enable 'stacking' revenues based on the benefits brought to grid by storage systems,
- A review of building codes that results in higher energy efficiency standards and onsite generation in new homes, factories, and offices. This should also include requirements for onsite energy storage at rural and large-scale EV charge stations (non-domestic),
- Similarly, the new £2.3 billion Housing Infrastructure Fund should be focused on ensuring decentralised energy generation and storage is embedded in local housing developments. This aim could be supported by encouraging the use of the Merton Rule within Local Authorities (which involves councils introducing prescriptive planning policy requirements that dictate that new buildings must generate a minimum level of their total energy needs onsite) or introducing a national Zero Carbon Homes policy,
- Embedded Benefits changes as proposed in June 2017 should be reconsidered in the Significant Code Review (SCR),
- Maintain stability with long-term commitments to sector deals,
- The Government's recently-launched (September 2017) Green Finance Taskforce could look into the provision of funding for energy storage demonstration sites and into expanding the use of green bond financial products being sold through crowd funding platforms.

Any sector deal should reflect the wide-ranging implications of advancements in battery and energy storage technologies, including for electric vehicle charge point roll-out, agriculture, energy in buildings, national and company-level energy security, and beyond.

The UK's industry has already embarked on a range of tasks for industry to develop this market

- Industry is creating better shared data on deployment and locations,
- Industry is coordinating standards development, including regarding battery fires and system installation,
- Industry is considering investment in UK product assembly and manufacturing,
- Industry is working with the Systems Operator to open Ancillary Services market to greater competition and transparency,
- The energy storage industry already employs over 10,000 people across the UK[4],
- Industry is working with DNOs to encourage them to adapt to the increasing number of grid connection requests and rapid decentralisation of the power system,
- Industry is working with a range of academic institutions and government agencies to drive product innovation,
- Industry working with Government and academic institutions to address battery and other energy storage system recycling.

Energy Storage Export and Manufacturing Opportunities - REA Analysis

If changes are introduced the REA anticipates a number of export and manufacturing opportunities post-Brexit

Export and Manufacturing Opportunities

- The manufacturing of large scale batteries, including copper-zinc and flow batteries,
- Lithium-ion battery manufacturing principally developed for the automotive sector,
- The manufacturing, deployment, and export of thermal batteries,
- Export of Intellectual Property (IP) value derived from research and development in UK laboratories and academic instructions. IP value can also be derived through early-stage commercial deployment of these technologies, including the integration of the distributed power and storage network with the electricity grid and electric vehicle infrastructure,
- Export of consultancy and advisory services derived from experience in early-stage commercial storage deployment,
- Provision of finance for international projects and export of financial products to the global energy storage industry, including investment, insurance, and contract negotiation,
- In the longer term, export and potentially manufacturing of newer technologies and applications such as Compressed Air Energy Storage (CAES) and hydrogen (technology and as a product),
- Export of energy modelling and management systems and expertise,
- Export of expertise and technology for battery recycling and second life EV battery use in fixed deployment,
- Export and manufacturing of integrated management offerings for smart charging systems for plugin vehicles including associated hardware, including integration with local distributed energy resources such as fixed storage and local generation,
- Export of software algorithm, big data analysis, and machine learning expertise for management of storage in complex scenarios such as where there are different commercial interests or technical needs competing to control or influence the behaviour of storage assets.

In the REA's view, the ability to develop robust international exports of storage technology and expertise is contingent on the development of a strong, vibrant UK market. This fundamentally binds the success of the Industrial Strategy, the Smart Systems and Flexibility Plan, and future exports post-Brexit tightly together.

Join the REA now

This is a rapidly expanding industry and quickly evolving policy space. To be up to date on key industry developments and policy changes, and to feed into the REA's work, become a member today!

Join now and gain access to the REA's analysts and information until the end of the year for £100*.

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[1] Upgrading our Energy System - Smart Systems and Flexibility Plan. July 2017, Gov.uk: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/633442/upgrading-our-energy-system-july-2017.pdf
[2] National Grid System Needs and Product Strategy consultation: http://www2.nationalgrid.com/UK/Services/Balancing-services/Future-of-balancing-services/
[3] With thanks to Innovate UK for their collaboration on this section.
[4] REA analysis - REView 2017

*Offer valid September/October 2017 only and includes additional sign up for the 2018 REA membership year.

RENEWABLE ENERGY ASSOCIATION
GROWING THE RENEWABLE ENERGY & CLEAN TECH ECONOMY

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