

# Government response to Smart Power

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## Introduction

In October 2015, the Chancellor of the Exchequer announced the creation of a National Infrastructure Commission, to produce a clear picture of the future infrastructure the country needs and provide expert, independent advice on infrastructure priorities. The commission currently operates in interim form, under its Chair Lord Adonis.

The Chancellor asked the commission to look at three specific infrastructure challenges: a plan to transform the connectivity of the Northern cities; priorities for future large-scale investment in London's public transport infrastructure; and how to ensure that supply and demand are balanced as efficiently as possible in the energy system. The commission's report on investment in energy infrastructure, 'Smart Power', was published on 4 March 2016.

**At Budget 2016, the Chancellor confirmed that the government accepts the commission's recommendations in the report.** This document sets out the government's response to the commission's recommendations in more detail.

The government has recently consulted on the structure, governance and operation of the commission, and proposes to introduce legislation to put the commission on a statutory footing.

## Smart Power

The government welcomes the report 'Smart Power' as an opportunity to transform the future of the UK's electricity sector and will implement the commission's recommendations, subject to any necessary consents and assessments. The government has agreed the following response:

**Recommendation 1: Government should pursue additional interconnectors with other European countries where the benefits are most significant. Interconnection investment decisions should continue to sit primarily with the private sector but there is a role for government-led diplomacy to unlock those markets that can offer potentially large benefits to UK consumers. The government should therefore focus its efforts on exploring increased interconnection to markets with abundant sources of flexible low carbon electricity, such as Norway and Iceland.**

The government agrees with the commission that more interconnection is in the interests of consumers, will make an important contribution to security of supply and can help integrate more clean energy into the energy system. The government also agrees that investment decisions should sit primarily with the private sector.

The government believes a mix of short and long interconnection links remains appropriate. For longer interconnection links, the government is particularly interested in projects that can provide reliable, clean power, which naturally complements the developing generation mix in the GB market. **The regular UK-Norway energy dialogue continues with a meeting in April to discuss further interconnection to Norway, and work with the Icelandic government continues through a dedicated taskforce set up by the Prime Minister and due to report in May.**

The government has previously stated that an increase of 5GW of additional interconnection capacity could be considered beneficial to GB consumers. Given evidence provided by Ofgem and the commission, **the government now supports the market delivery of at least 9GW of additional interconnection capacity, believing this to be beneficial to consumers.** The government's assessment of the level of beneficial interconnection may rise further as more potential projects are assessed later this year.

The government recognises that there are constraints in the supply chain for cable manufacture, and that this creates an opportunity for business in the UK, given the strong pipeline of interconnectors and offshore wind links.

**Recommendation 2:** The UK should become a world leader in electricity storage systems. Two steps are required:

- 1 DECC and Ofgem should review the regulatory and legal status of storage and remove outdated barriers to enable storage to compete fairly with generation across the various interlinked electricity markets. The reforms should be proposed by Spring 2017 and implemented as soon as possible thereafter.
- 2 Network owners should be incentivised by Ofgem to use storage (and other sources of flexibility) as a means of improving the capacity and resilience of their networks as part of a more actively managed system.

The government welcomes the commission's recommendation on storage and agrees that storage has the potential to deliver a more secure and cost efficient energy system. Storage can perform many different roles in the energy system and this can lead to complexity in commercial as well as regulatory arrangements. Wherever possible, the government wants storage technologies to compete with each other and with other providers of flexibility to drive down costs in the energy system.

- 1 The government will implement the commission's recommendation and will work with Ofgem to deliver greater regulatory and legal clarity for storage. **DECC and Ofgem will publish a call for evidence on a smart systems route map shortly and will set out proposals for reform by spring 2017.**
- 2 Ofgem's RIIO<sup>1</sup> framework for regulating network companies, and in particular incentives on efficiency and innovation, provide the basis for network companies to trial new technologies or ways of working and to adopt those which will benefit consumers. Ofgem will monitor these incentives to ensure that they allow network companies to use flexibility efficiently to defer or avoid investments, support cheaper and more timely connections, or to better manage issues on their networks.

**Recommendation 3:** The UK should make full use of demand flexibility by improving regulation, informing the public of its benefits and piloting business models.

- 1 Ofgem should start an immediate review of the regulations and commercial arrangements surrounding demand flexibility with a focus on making participation easier and clarifying the role of aggregators; this should be complete by Spring 2017.
- 2 DECC should make future changes to the capacity market to reduce the costs and barriers to entry for demand flexibility.
- 3 DECC, Ofgem and National Grid should ensure that large users and opinion formers are aware of the money saving opportunities that demand flexibility can offer and encourage more industrial and commercial consumers to take part.
- 4 Pilots focusing on business models which make demand flexibility easy and attractive to consumers should be established and fully evaluated. Government should demonstrate best practice by investigating the scope for demand flexibility on its estate.

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<sup>1</sup> RIIO is Ofgem's framework for setting price controls for network companies. <https://www.ofgem.gov.uk/network-regulation-riio-model>

The government welcomes the commission's recommendation on demand flexibility, agreeing that demand flexibility has the potential to deliver a more secure and cost efficient energy system.

- 1 As part of their joint work with DECC, Ofgem will clarify the role of aggregators,<sup>2</sup> reviewing relevant regulations and commercial arrangements that are in place. **Options for enabling greater participation of aggregators will be tested through the forthcoming call for evidence on a smart systems route map. This will help to complete the review by Spring 2017.**
- 2 **Views on process changes to the capacity market will also be sought through the call for evidence**, where changes could be made in the short term to reduce administrative and cost barriers. DECC will also **monitor how the capacity market might need to evolve over time, with a full review taking place in 2019.**
- 3 DECC and Ofgem are fully supportive of **National Grid's Power Responsive campaign, aiming to raise awareness of the opportunities from demand flexibility amongst larger users.** DECC and Ofgem are also exploring, through stakeholder engagement, how to further support greater participation of large industrial and commercial customers in the provision of flexibility. **DECC and Ofgem will gather further information on what more needs to be done through the call for evidence**, in order to take forward this recommendation.
- 4 DECC will explore how, through innovation funding, pilots focused on demand flexibility could be best supported, with full evaluation of results. Following the Commission's report, the **government will allocate at least £50 million for innovation in energy storage, demand-side response and other smart technologies** over the next five years to help new technologies and business models develop to the point where they can compete in the market. In addition to this, to maximise the delivery of genuinely innovative projects and technologies, **Ofgem will consult later this year on the future of the Network Innovation Competition (currently worth £100 million annually for gas and electricity)** to better enable network innovation by non-licensed companies from 2017.

The government is providing demand flexibility from the government estate and will investigate ways to maximise this potential. For instance, government is investigating the potential for installing battery storage alongside solar panels on various sites.

**Recommendation 4: The System Operator must create new markets that will allow open competition for the services it procures and ensure it keeps pace with the network it oversees.**

- 1 The creation of an entirely independent System Operator should not be treated as an immediate priority but should be kept under review in the light of progress towards strengthening National Grid's independence.
- 2 Ofgem should consider how it encourages the System Operator to develop new markets to provide ancillary services which allow new technologies to participate more easily. The long term goal must be for a more strategic and transparent approach to the procurement of ancillary services and more cost-reflective charging.
- 1 The government recognises the pivotal role National Grid has played as system operator in keeping the energy market working. As the system changes, it is important to ensure it is as secure, flexible and cost-effective as possible. There is a

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<sup>2</sup> Aggregators are "organisations offering services to aggregate energy demand or production from different sources to act as one entity in providing services to the grid."  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/505218/IC\\_Energy\\_Report\\_web.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/505218/IC_Energy_Report_web.pdf)

strong case for greater independence for the system operator to maximise the benefits of a more flexible market, and realise the potential of interconnection, storage, and demand flexibility. DECC is working alongside National Grid and Ofgem to consider how to reform the current system operator model to make it more flexible and independent.

- 2 The government agrees that the System Operator should continuously work to ensure that the ancillary services market is as competitive as possible and open to all market participants capable of providing the services. Over the summer Ofgem will consult on a revised system operator incentives scheme. As part of this review, Ofgem wants to consider ways to make the ancillary services market more transparent. The review will also aim to consider ways in which National Grid Electricity Transition (NGET) can be incentivised to be more innovative. This will be with the goal of increasing participation in the market for ancillary services from new entrants and new technologies. DECC and Ofgem have also been looking more broadly at the future roles of parties in network and system operation with a view to ensuring co-ordinated and efficient use of flexible resources on the system, including new technologies. This will form part of the forthcoming joint call for evidence.

**Recommendation 5: Enabling the transition to more actively managed local networks should be a government priority. By Spring 2017 DECC and Ofgem should consult and set out how and under what timeframe this transition should best take place.**

The government and Ofgem are committed to enabling more actively managed local networks, empowering Distribution Network Operators and other players to make the best use of low-carbon generation to deliver the best deal for consumers. DECC set out in the December 2015 publication 'Towards a smart energy system' the view that a smart network will form the backbone of a smart energy system. The transition is underway and active network management is starting to become part of business as usual approaches for Distribution Network Operators (DNOs). Ofgem will continue to monitor the regulatory framework to ensure it supports the efficient use of these approaches.

The government has been working actively with industry, particularly through the Smart Grid Forum, to develop a common understanding of the value of a smarter and more flexible energy system, explore policy proposals and take stock of trials and initiatives, and will continue to do so over this year. **Together with Ofgem, DECC plans to present a further assessment on the transition to more actively managed local networks in the forthcoming call for evidence and, in the government response later in 2016, will set out how and under what timeframe this transition should best take place.**

**Recommendation 6: Where upgrades to our networks are needed Ofgem should continue its work in encouraging network companies to make long term strategic decisions. Whilst this does increase the risk of stranded assets, the Commission believes that if there is a potential net gain to future consumers then this approach may be justified. If network owners are not best placed to manage this risk, they should work with third parties to help facilitate these investments.**

The government agrees that this is an area that should be explored and has been engaging with Ofgem, network companies, and other stakeholders. Ofgem consulted on this issue last year and invited DNOs and other stakeholders to come forward with trials that might enable reinforcement to take place in anticipation of future connection customer requirements. Ofgem is continuing to work through each trial with individual DNOs and stakeholders to establish whether the schemes are currently permissible, identify any regulatory issues, and judge whether there might be any unintended impacts on competition in connections. It plans to **publish periodic updates on a**

trial-by-trial basis to share learning. Ofgem recognises that new schemes or trials may emerge in the future and has invited stakeholders to bring these forward when appropriate.