



**Electricity distribution license holders  
Electricity transmission license holders  
Users of electricity distribution networks  
All parties engaged in the development of  
smart grids**

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*Promoting choice and value for  
all gas and electricity customers*

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Dear Colleague,

### **Smart Grids Evaluation Framework – A Smart Grids Forum Consultation Report**

Today we are publishing, for consultation, the Stage 1 report of Work Stream (WS) 2 of the Smart Grids Forum. This report explores the value drivers for smart grids and proposes a specification for a model that will assess the cost benefit of smart grid solutions compared with the 'business as usual' alternatives. The consultation closes on 16 December. All responses should be sent to [lia.santis@ofgem.gov.uk](mailto:lia.santis@ofgem.gov.uk).

### **Background to the Smart Grids Forum**

The Government and Ofgem aim to support the transition to a secure, safe, low carbon, affordable energy system in the UK. We have binding targets to reduce greenhouse gas emissions by at least 80% by 2050 (on 1990 levels) and this is likely to involve an increased electrification of heat and transport as well as a greater reliance on renewable and local sources of generation. Further, the establishment of a low carbon energy sector, along with the roll out of smart meters, provides an important opportunity for greater use of demand side management by players in the supply chain. All of these developments could have a significant impact on electricity networks, particularly at distribution level where there is currently little active monitoring or control of the networks and energy flows predominantly in one direction.

There is considerable interest in how the distribution companies will meet these changing needs. Ofgem and DECC, along with other parties, are concerned to ensure that grid capacity and other constraints do not hold up the penetration of low carbon technologies and that meeting these new requirements is achieved at good value for customers while maintaining security of supply. There is particular interest in how much the companies should use smart technology which allows greater monitoring and control of networks and how much they can rely on demand side and generation side management, rather than network reinforcement. The interest in "smart grids" extends across the energy supply chain. This recognises the vital role that network companies play in integrating the needs of producers and consumers and that the decisions which are made by network companies can impose costs and benefits to suppliers and other commercial players in the electricity market.

Against this background, the level of interest and activity related to the development of smarter electricity networks is continuing to grow. DECC and Ofgem have already taken a lead with the publication of the Electricity Networks Strategy Group's (ENSG<sup>1</sup>) Vision<sup>2</sup> and Route Map<sup>3</sup> for Smart Grids. Ofgem has put in place a new regulatory framework, RIIO<sup>4</sup> aimed at rewarding companies that meet the low carbon challenge at value for money for customers. Moreover, in recognition of the innovation that is likely to be required by networks, since 2010, Ofgem has been running the Low Carbon Networks Fund<sup>5</sup>. This has made £500m available for trials and demonstration projects to provide electricity distribution network companies (and the rest of the supply chain) with learning on how best to meet the needs of the low carbon future. The first major projects awarded funding under this initiative<sup>6</sup> were announced last year and include two large scale smart grid demonstration projects as well as a number of other projects which aim to make better use of smart technology and commercial arrangements. This year's winning projects will be announced at the end of this month.

Notwithstanding these and other initiatives, earlier this year DECC and Ofgem agreed to provide further leadership to the industry on smart grid issues. We established the Smart Grids Forum in April to bring together key opinion formers, experts and stakeholders in the development of GB smart grids to provide strategic input to help shape Ofgem's and DECC's policy making and leadership in this area. It should also help provide the network companies with a common focus in addressing future networks challenges, ensure that whole system benefits are considered in this work and provide drive and direction for the development of smart grids. The members of the Forum represent the network, supplier, generator, customer and manufacturer communities. A full list of members is available on our [website](#).

### **The Smart Grid Forum – this consultation**

Following the Forum's first meeting, five work streams were established. They are as follows:

- WS1 – Assumptions and scenarios – this work is led by DECC. It will establish the assumptions and scenarios necessary for the network companies to produce business plans that are consistent with DECC's low carbon transition.
- WS2 – Evaluation Framework – Ofgem is leading this work to develop an evaluation framework that can assess, at high level, alternative network development options. It is intended that the Framework will help inform policy decisions related to smart grids.
- WS3 – Developing Networks for Low Carbon – the DNOs are leading this work to assess the network impacts of the assumptions and scenarios from WS1.
- WS4 – Closing Doors – this work stream brings together stakeholders to identify credible risks to the development of smart grids as a consequence of forthcoming policy decisions which might fail to take full account of the necessary enablers for smart grid development.
- WS5 – Ways of Working – finally, this work stream looks at how the Forum can best pursue its objectives and communicate effectively with stakeholders.

The work streams are pursuing a range of activities in parallel and will all report their findings by April 2012. At that point we will report on the first year's work of the Forum and consult on whether it should continue and what, if so, should be the content of its work programme. Today's consultation relates solely to WS2.

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<sup>1</sup> [ENSG website](#)

<sup>2</sup> [ENSG - A Smart Grid Vision](#)

<sup>3</sup> [ENSG - A Smart Grid Route Map](#)

<sup>4</sup> <http://www.ofgem.gov.uk/Networks/rpix20/ConsultDocs/Documents1/RIIO%20handbook.pdf>

<sup>5</sup> <http://www.ofgem.gov.uk/Networks/ElecDist/lcnf/Pages/lcnf.aspx>

<sup>6</sup> [Low Carbon Networks Fund press release](#)

At the outset of the WS2 project, it was decided that it should be split into three stages. In the first phase, we would establish the drivers for smart grid development, explore the distribution of investors and beneficiaries and propose a structure for a cost benefit analysis (CBA) model that could deliver a high level assessment of competing investment strategies; in particular smart grid solutions and the business-as-usual counter-factual. In the second stage, the CBA model would be built and validated. Finally, in the third stage, the model would be used to draw initial conclusions about the benefits of different investment strategies. Data available at this stage from WS1 and WS3 will be used.

The CBA model will be made widely available and it is intended that it will be used by stakeholders on an on-going basis so that the effects of changes in assumptions and improvements in data on costs and benefits can be assessed.

Today we are publishing the report for stage 1 of the project to inform all interested stakeholders about this work and to seek their comments. This consultation will inform the further work in stage 2.

We are working with Frontier Economics and EA Technology on this project and they have produced the stage 1 report. The members of the WS2 team have reviewed this report and will also jointly review the responses we receive. The report builds on earlier work carried out by Frontier Economics which was considered by the Forum at its first meeting and is now available on our website<sup>1</sup>.

The report focuses on the value drivers for smart grids, the competing investment strategies that distributors could apply with regard to smart grids, an analysis of the value chain impacts of smart grids and the proposed CBA model specification. For each section, a number of questions are posed that we would appreciate responses to.

While there is a growing consensus that the efficient development of our electricity networks will require smarter technologies and solutions, the evidence base needs to be made more robust. The work of WS2 and the Forum more generally is intended to help build this evidence base; in particular as an input to the next electricity distribution price control review – RIIO ED1. While we appreciate the limitations of models of this kind we are confident that it will help:

- achieve a better understanding and alignment across the industry on the nature of the costs and benefits from smart grids and the key factors that impact the business case;
- provide quantitative guidance that could help inform high level policy decisions (for e.g. whether the industry should start a programme of smart grid roll out now or invest only on a case by case basis); and
- provide a live tool which can be updated as better data becomes available/circumstances change etc.

We recognise that there is great interest in smart grids amongst a wide stakeholder community. It would be very helpful to WS2 and the Forum to receive responses to this consultation from parties across this community. We also appreciate the complexities of the issues being discussed and believe that it could be useful to hold an open workshop, probably in December, to allow a more interactive discussion. If you would like to attend such a workshop, please email [lia.santis@ofgem.gov.uk](mailto:lia.santis@ofgem.gov.uk) by 1 December listing the three key agenda items that you would like to see addressed. We will then contact all those parties that have expressed an interest to tell you what we plan to do.

This consultation closes on 16 December. All responses should be sent to [lia.santis@ofgem.gov.uk](mailto:lia.santis@ofgem.gov.uk). They will all be published on our website unless we are asked to treat them as confidential. If you have any questions about this process please feel free to contact me or Lia Santis.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Rachel Fletcher', is positioned above the printed name.

**Rachel Fletcher**  
**Acting Senior Partner – Smarter Grids & Governance: Distribution**

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<sup>i</sup> <http://www.ofgem.gov.uk/Networks/SGF/Documents1/RPT-Ofgem-Final%20Report%20for%20Smart%20Grids%20Forum-310311-STC.pdf>