

# **Smart Grid Forum WS2 (Evaluation Framework)**

## **Terms of reference and work plan**

### **8 August 2011**

#### **Introduction**

The challenge of carrying out credible cost benefit analyses (CBA) for smart grid deployment is well recognised. As an example, the ENSG Smart Grids WG attempted a CBA as part of its Vision report<sup>1</sup>. This proved to be a useful exercise but highlighted the difficulties involved. Essentially, the number of input variables and the range and value of the benefits delivered make the analysis very volatile. However, it is recognised that a framework for evaluating the value of smart grid solutions is important if DNOs are to justify such investments when the benefits are less certain than for more conventional solutions. This project is designed to meet this need.

#### **Purpose**

The purpose of this SGF project is to: (a) gain a better understanding of the network user needs that drive the value of smart grid solutions (this links with WS1) and the parties that realise this value; (b) develop an Evaluation Framework capable of quantifying the value and the cost benefit of smart grid deployment opportunities (i.e. at GB level); and (c) estimate the range of values which are likely under different scenarios (again linking with the outputs of WS1 and WS3).

#### **Approach**

The work is expected to build on the high level analysis of smart grid value drivers included in the [discussion paper](#) tabled at the first SGF meeting. It is intended that the framework will be developed with significant input from the WS1 and WS3 workstreams (and other members of the SGF) and other stakeholders (through a consultation). This should help provide a basis of common understanding across the energy industry on the key value drivers, the range of their materiality and the key factors which will influence the value from smart grids.

While WS1 will provide inputs to the project relating to the demands (in the widest sense) that networks will be required to meet, WS3 will provide inputs relating to the costs of specific smart solutions. It is intended that the WS2 model will be capable of both estimating value and incorporating cost estimates such that a CBA will be feasible.

It is expected that the outcome of this work should help answer macro questions such as whether there is such a robust case for smart grid solutions in the transition to a low carbon energy sector that a programme of installing specific smart solutions needs to commence in the short term. This work should also help the DNOs to understand what needs to be included in the business cases they bring to Ofgem for smart grid solutions at the next price control review (RIIO-ED1). As part of this work we will explore how to

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[http://webarchive.nationalarchives.gov.uk/20100919181607/http://www.ensg.gov.uk/assets/ensg\\_smart\\_grid\\_wg\\_smart\\_grid\\_vision\\_final\\_issue\\_1.pdf](http://webarchive.nationalarchives.gov.uk/20100919181607/http://www.ensg.gov.uk/assets/ensg_smart_grid_wg_smart_grid_vision_final_issue_1.pdf)

value the flexibility which could be delivered by smart grid solutions. The balance between network investment and performance will continue to be a key assessment criterion.

While the project will focus primarily on the distribution system, the impacts on transmission will be taken account of. The ENSG will be informed of the work and given the opportunity to engage with it.

The project will have two stages. Stage 1 will focus on item (a) above (see Purpose). Stage 2 will address items (b) and (c).

It will be important to consider the value of smart grid development opportunities for different network use scenarios and timeframes – i.e. the value in this decade could be very different to the value in future decades. For example:

- Near-term (to 2020) – in this period the need for the functionalities that a smart grid can offer will be increasing but not compelling; BAU solutions may well retain 'least cost' status in this period;
- Medium-term (2020-2030) – the rate of low carbon transformation is likely to increase strongly such that smarter solutions take the 'least cost' position.
- Longer-term – (2030 onwards) – BAU solutions are now not fit for purpose and the smarter grid rapidly becomes all pervasive.

The framework will be designed to dovetail with the outputs from WS1 and draw on the outputs of WS3.

As part of the work on key value drivers, the project will test the thesis that the facilitation of demand side management (in particular related to the reduction of generation capacity but also system balancing and managing network constraints) could be the highest value smart grid application. The work on this already carried out should be developed further to better understand/evaluate this value stream.

## **Lead**

Ofgem will lead this work but will require the full support of other stakeholders, particularly the DNOs and DECC. It is intended that the framework/methodology is endorsed by Ofgem so that it can be used with confidence by the DNOs in support of their RIIO-ED1 business planning processes.

## **Resources & Support**

Ofgem intends to engage a consultant to support this work. An 'Expression of Interest' has already been published based on these terms of reference so that potential consultants, or consortia, will be fully prepared for the release of a full ITT soon after the SGF meeting.

The consultants will need to take a holistic view of the smart grids landscape and provide a strong rationale/evidence base for the ideas put forward. They will need to work closely with Ofgem, DECC and the WS2 working group to ensure that the final report can be agreed and delivered to the proposed timetable. Links to the WS1 working group will

also be essential. Importantly, we already have a strong team from the SGF to form the Working Group.

### **Funding**

The cost of engaging the consultants will be met by Ofgem.

### **Deliverables**

Reports will be produced for both Stage 1 and Stage 2. Stage 2 will also incorporate the spreadsheet model. The form of the reports will be agreed as part of the project specification. The spreadsheet model will be made freely available to the network companies and more widely as agreed by the Forum. It will have the capacity to be used/developed further after the completion of this project.

### **Timescale (subject to refinement and harmonisation with WS1)**

- Draft terms of reference circulated to the SGF for comment prior to the July meeting
- Terms of reference and WG confirmed – July SGF meeting
- Issue ITT – early August (with WS2 support)
- Project commences – late August
- Joint WS 1,2 and 3 meeting – mid/late September
- Stage 1 report for consultation – early October
- Initial report to October SGF
- Consultation closes – TBA
- Stage 2 draft report – November – date TBA
- Project complete – end December
- Final report published – following 4<sup>th</sup> SGF meeting, early 2012

### **Risks**

Expectations do need to be managed with this project. As noted at the start of this paper, carrying out CBAs for smart grid deployment is challenging. However, there is seen to be a real need for this work and it should therefore be pursued in a creative way to deliver the very best outputs possible.