# Long-Term Electricity Network Scenarios (LENS) Project - Ofgem summary of responses to 15 June 2007 open letter

## Introduction

In its open letter on the Long-Term Electricity Network Scenarios (LENS) project of 15 June 2007 (Ref. No. 146/07), Ofgem sought the views of respondents about the proposed approach for the project set out in the letter. This note summarises the responses we received to the open letter.

We received 12 non-confidential responses as set out in the table below.

| List | Name |
|---|---|
| 1 | British Wind Energy Association (BWEA) |
| 2 | CE Electric UK |
| 3 | Corus UK Energy Supplies |
| 4 | EDF Energy Networks |
| 5 | Energy Networks Association |
| 6 | Energywatch |
| 7 | E.ON Central Networks |
| 8 | National Grid |
| 9 | Pöyry Energy Consulting |
| 10 | Scottish and Southern Energy |
| 11 | SP Transmission & Distribution |
| 12 | United Utilities |

Responses received by Ofgem which were not marked as being confidential have been published on Ofgem's website.[1] Copies of non-confidential responses are also available from Ofgem's library.

We received comments both on the proposed approach for the project and on issues relevant to future networks that respondents felt needed to be considered in the project. Comments on approach and issues are summarised in turn below. The responses will be used by Ofgem and its academic partners to inform the project going forward.

## Comments on proposed approach

### Project timescale

Seven of the twelve respondents expressed concern that the end date for this project is not aligned with the initial consultation for DCPR5. The general view is that this project could provide valuable information to those parties involved in DCPR5. Should the timetables not be aligned many respondents expressed concern that this information will not be available to them in time to complete the Forward Business Plan Questionnaires (FBPQs) that form part of the DCPR5 process.

In contrast, one respondent, while expressing some concern in relation to the early stages of the DCPR5 process, also felt that it was encouraging to see that a reasonable timeframe had been allotted to each phase of the project and considered that this would allow high-

[1] Responses are available on the LENS page of Ofgem's website, http://www.ofgem.gov.uk/NETWORKS/TRANS/ELECTRANSPOLICY/LENS/Pages/lens.aspx.

quality analysis to be carried out. The same respondent believed that a constrained timetable could prove to be counter-productive.

## Scenarios

*2050 and 2025 timeframe*

The majority of respondents agreed that 2050 was an appropriate and sensible timeframe within which to look at the development of electricity networks on a long term basis. There was also considerable support for 2025 as the point at which to 'back-cast' scenarios. However, some respondents favoured back-casting to 2010-15 as it was felt this would be more useful in the context of DCPR5.

*Nature of scenarios*

One respondent felt that this project would benefit from focusing on the range of credible scenarios rather than pinning down the details on individual scenarios. Another respondent considered that high level cost benefit analysis will be required on the more radical solutions so as to assess whether an evolutionary or revolutionary approach will better meet current and future social and environmental objectives.

Another respondent observed that modelling scenarios to 2050 involves a great deal of uncertainty. The same respondent noted that in the Supergen scenario initiative for 2050, more radical scenarios were deliberately omitted in favour of more probable (but lower impact) scenarios.

*Range of scenarios*

The majority of respondents support the range of four to five scenarios that we proposed for this project, with one respondent drawing attention to the importance of ensuring that the full range of potential long term scenarios is considered. However, another respondent considered that further thought should be given to the number of scenarios and level of analysis to be undertaken as part of this project, as it was felt that these may need to be more focused if outcomes are to be fed into the DCPR5 consultation in February/March 2008.

Another respondent considered that given the wide range of plausible outlooks, a key issue for future price controls will be how to deal with this uncertainty.

A further respondent recommended considering carefully whether the Supergen 2050 scenarios might already be broadly representative of the range of scenarios required for the LENS project.

## Related academic and other studies

A number of respondents expressed support for the academic work already completed or currently underway for the LENS project and other related projects. The research undertaken by Strathclyde University, generally referred to as the Supergen scenarios, is seen by a number of respondents as an appropriate starting point for this work and they are keen to see an extension to this. One respondent has previously commissioned a study into the range of network investment scenarios.

## Comments on issues relevant to future networks

### Generation

Several respondents considered that the geographic location of generation (and demand) would be an important factor when considering the long term future of the network. The tension created by sources of large scale renewable generation possibly being situated much further from sources of demand and small scale generation becoming more localised was thought by some to be an issue that needs careful consideration for the purposes of this project.

One respondent noted that regional portfolio effects would need to be considered. Another commented on facilitating renewable generation on both distribution and transmission systems in the more remote areas of Scotland and North Wales.

### Demand

*Location of demand*

The issues raised on demand location are closely linked and very similar to those raised on generation location. Again, distance from sources of generation was identified as a key issue as too was the requirement to identify regional differences in demand.

*Energy efficiency, patterns of usage and consumer behaviour*

A number of respondents consider potential changes in patterns of usage to be key to the future development of long term scenarios. In particular, they consider it important to be mindful of the impact of energy efficiency aspirations on consumer demand and patterns of usage. In addition, future increases in the use of smart metering are also seen as having a potential impact on the way in which consumers interact with their supplier and could also have a positive effect on the drive toward greater energy efficiency. One respondent also highlighted the possibility of increasing summer load growths, for example with the expected extension of the use of air conditioning systems.

Regarding the tension between localised small scale generation and distantly located and large scale renewable generation (already referred to above), one respondent considered that consumers could best be served through the development of networks that are most accessible to them, as such solutions could contribute to their efforts to consume energy more efficiently. The same respondent observed that the tension between this and the desire to develop large scale and distant forms of generation and transmission (including offshore connections) would need to be considered as part of any scenario development, if flexible and robust solutions are to be found.

*Consumers' expectations*

One respondent considered that it was the responsibility of transmission owners, distribution owners and Ofgem to deliver on consumers' expectations. Another respondent highlighted that customer expectations (including expectations about levels of service performance) are likely to increase in future.

*Transport*

Several respondents identified the potential effect of transport and associated government policy on demand profiles and the wider energy infrastructure. One respondent used the examples of future increases in the use of electrified rail networks and the possible extension of light railway and tram systems as factors that may affect demand on distribution networks.

**Technological developments**

Several respondents pointed to the importance of considering future technological developments when looking at long term scenarios. One highlighted that the commercial viability of fuel cells is expected to increase in the future. The same respondent also referred to network technologies such as power electronics, super conducting devices and energy storage as areas where major progress can be expected.

Respondents emphasised the impact that these technological developments could have on both network architecture and the way in which customers interact with their supplier, e.g. through smart metering.

**Security of supply & network resilience**

Several respondents identified security of supply as an important factor in the consideration of long term network scenarios. Two respondents highlighted that security of supply will need to be considered against an ageing asset base. Another response highlighted that security of supply will become increasingly important in future years as our reliance on technology continues to increase. The need to consider urban security of supply, particularly in major commercial centres, was also raised in one response.

A number of respondents commented on the need to ensure network resilience and safety in future years. Issues identified under this topic included climatic changes, possible terrorist activity and flooding.

**Stranded assets**

One respondent noted that network resilience and flexibility should be balanced against other factors such as costs, emphasising in particular the risks and costs of stranded assets which would lie with future energy consumers. The same respondent believed that competition is capable of delivering lower cost networks, but only where the risk of stranded assets is minimised.

**Role of network companies**

A number of respondents noted that it is important to consider the future role of distribution companies when developing long term electricity network scenarios. Several responses identified the potential for distribution companies to become involved in the operation of the distribution system, similar to the role currently undertaken by the Great Britain system operator (GBSO) on the transmission system. Respondents see this change of role as a method of easing network constraints and allowing distribution companies to provide energy services to end users.

One respondent commented on the potential for distribution companies to become more proactive in supporting a low-carbon economy.

**Environmental considerations**

Three respondents raised the issue of whether new overhead transmission cables would be environmentally acceptable in future years. One of these respondents highlighted the visual acceptability of overhead lines and stated that engagement with some of their key stakeholders suggests support for the selective undergrounding of overhead cables.

**Network performance**

One respondent noted that customer expectations in terms of interruptions must be considered when looking at long term network scenarios. Another thought that the

establishment of future network performance requirements is an important consideration for this project.

**Interconnectors**

One respondent raised the question of whether increased interconnector infrastructure and flows will have a significant impact on the future of the electricity network.

**Devolved administrations**

One respondent highlighted that greater engagement with government, in particular the devolved administrations of Scotland and Wales will be important for the purposes of this project. Another highlighted the policies of such administrations as a key driver behind the future of electricity networks and that further thought should be given to the possibility that such administrations may develop their own policies and plans, particularly with regard to renewable generation.

**Future resource and skills requirements**

One respondent picked up on the issue of ensuring adequate skills and human resources to implement the changes implied by the scenarios. In addition, they pointed to a potential gap in the academic field in terms of a lack of appropriately qualified personnel, which could adversely impact future research and development. Such research would be necessary for enabling the technological transformations implied by the scenarios.