# *Response to Ofgem consultation on licence conditions and Guidance for network operators to support an efficient, co-ordinated, and economical Whole System*

## KEY POINTS

**Whole electricity system solutions have the potential to deliver value for customers as we demonstrate with the examples included in this response. We therefore support the proposed scope and implementation of the licence condition and guidance. However, we see this whole electricity system approach as an interim step. In the future, we think it will be appropriate to consider a whole energy system approach when current innovation projects have provided more evidence as to the value for customers and commercial models have matured.**

- Section 9 of the Electricity Act 1989 requires transmission and distribution operators to develop and maintain an efficient, co-ordinated and economical system of electricity transmission / distribution respectively. We have always read this to mean a requirement for co-ordination between transmission and distribution and this is supported by grid code requirements on data exchange. However, the interpretation is implicit rather than explicit and we therefore support Ofgem's desire to clarify the obligation in the licence and also to provide additional Guidance.
- We have numerous examples where we have worked with the electricity system operator (ESO) to minimise reinforcement costs and benefit customers in our region.
- The scope of the licence condition and Guidance are appropriately targeted at whole electricity system co-ordination of asset replacement and constraint management where the solutions considered would be network build, network flexibility and customer flexibility solutions:
  - Whole energy system solutions need to be considered but we are not yet at a stage where the processes and expectations are sufficiently understood to be codified in a licence obligation.
  - We believe that connections are best treated with the connectee deciding whether they wish to compare different connection offers from the distribution network operator (DNO), the transmission owner (TO) or an independent network and for them to decide on which is the best option rather than it be a requirement for the licensees to collaborate on determining the optimum solution for all connections at the interface.
- There will be systems and resource implications and a pragmatic approach therefore needs to be taken to ensure that work required is proportionate to the benefits, which means that whole system planning will be initiated where there is a clear need rather than every project at the interface being exposed to a whole system planning process.
- Funding transfer mechanisms are required such that where a company elsewhere in the system can do it cheaper than the network company with the obligation then it contracts to provide the necessary services. Revenues may then be treated as an excluded service.
- There may also need to be a mechanism to fund the design and optioneering work that DNOs will have to do at the request of the ESO to cover such costs for all the whole system planning activity; not just the cost of the projects that go ahead.
- Work is currently ongoing as part of the Open Networks project to understand the data and information requirements and implications on systems, processes and resources.

# Responses to specific questions

## *Objectives*

***Q1. Do you agree with the proposal to clarify Whole System Planning responsibilities through licence and supporting Guidance? Where possible, please provide evidence and examples to support your views. In particular, please describe:***

a) ***The potential benefits you might expect to result from these proposals?***

b) ***If there are any material costs or issues for you in relation to these proposals?***

1. Yes, we support the proposal to clarify Whole System Planning responsibilities through licence and supporting Guidance.

2. Customers will clearly benefit if a lower cost option is derived by network operators working more closely together rather than independently to solve issues on their own networks. There are a number of examples where we have engaged or are engaging with the ESO and TO:

- The Blyth active network management scheme monitors the loading constraints on both the TO and Northern Powergrid assets and manages 520MW of distribution connected generation customers to alleviate potential overloading issues on both companies' assets;
- The reinforcement of the Doncaster region where we considered transmission and distribution infeeds and changed direction on the intended solution in order to avoid additional transmission costs;
- Close liaison on the compliance assessments at Keadby that has enabled National Grid to avoid the need for a fourth super grid transformer;
- Liaison on the transmission rebuild at Lackenby regarding transformer impedances to ensure that the transmission solutions avoided triggering fault level related reinforcement requirements on the distribution system;
- Exploring the use of reactive power solutions on the distribution system to solve high volts issues on the transmission system as part of the Open Networks project;
- Considering different power factor running arrangements with new distributed generation connectees, and existing generators, to reduce the reactive powerflow on to the transmission network, thereby avoiding the need for transmission reinforcement; and
- Joint working on the strategy for the replacement of the 275kV ring in Sheffield (which feeds 275kV to 33kV substations) to assess whether the optimum solution is to replace the 275kV transmission system on a like for like basis or whether a more economical solution might be to introduce a 132kV distribution system.

3. By engaging in this manner we are delivering whole system optimised solutions that benefit our customers by minimising electricity bills.

4. These whole system initiatives have been managed through our existing interface processes with National Grid. It is reasonable to assume that as we move through RIIO-ED2 and into RIIO-ED3, experience the growth in demand and generation that is predicted by scenario modelling, and transition to a more actively managed distribution network, the need for closer co-ordination and data exchange will increase in scope and frequency. This will have both a people resource and an IT resource implication. The investment planning work being undertaken by the Open Networks Project is looking at development requirements and recommends:

   - That the data requirements of the Week 24 and Week 42 data submissions are augmented to support the whole system planning process.
   - ESO and the DNOs need to have much greater visibility of each other's networks; both existing and future. The process would also benefit from a closer working relationship and earlier engagement between distribution and transmission network operators in specifying the need.
   - Requirements need to be communicated in such a manner that there is an indication of where in the region being considered solutions would be beneficial, but not so specific that it limits the options submitted.
   - The costing of the DNO options needs to be done in a manner consistent/comparable with the TO options to facilitate a meaningful cost benefit analysis (CBA). A clear set of rules will need to be defined ahead of any procurement/optioneering exercise.
   - The CBA process needs to compare transmission, distribution and market solutions with a transparent CBA process.
   - Recognition of whole system needs and the associated resource, including IS/IT infrastructure costs will need to be identified as part of both the transmission networks and distribution networks business plans for T2/ED2 and beyond.

5. It is clear that the level of resource required for providing whole system solutions will vary depending on two key factors:

   - Future need – how often will there be a need to explore whole system opportunities; and
   - Scope for case studies - how the system need is described by the ESO, for instance, will have a significant impact on the level of resource required. The more focused the requirements are, the less impact there will be on resource. However, too focused and this may lead to a narrower set of options and ultimately a less cost effective solution. Conversely, too broader scope and the process becomes too unwieldy.

6. Both of these factors are currently unknown variables and the impact on specific parties may vary substantially from year to year. The need for additional resource will also be impacted by ongoing developments in network automation and enhanced IS/IT infrastructure.

7. For RIIO-2; where possible recognition of whole system needs and the associated resource, including IS/IT infrastructure costs, will need to be identified as part of both the transmission networks and distribution networks business plans. To make the best assessment ahead of time it is therefore essential that both transmission and distribution network operators have visibility pre-submission of each other's future business plans. The route to funding for these whole system specific scenarios will need to be agreed. In the short term this is a key area for us in engaging with National Grid on its T2 business plan.

## *Draft licence conditions & guidance*

***Q2. Do you agree with the proposed scope and content of these licence conditions and Guidance? Please provide any specific comments you have on the attached draft, including illustrative examples and, where possible, please provide reasons and evidence to support your response, in particular:***

a) ***Are there any other examples or areas of activity which you consider should be highlighted, or do you see the need for further clarity in any area?***

b) ***Do you consider these would be beneficial and proportionate? Are there any aspects that should not be included?***

8. We agree with the scope and focus of this licence condition and associated Guidance for electricity network operators; recognising that a similar complementary obligation has been placed upon the ESO, which is essential to the whole process. Further, we agree with the focus on whole *electricity* system outcomes at this time while encouraging more whole *energy* system optimisation in the future.

9. We have some comments on the drafting of the proposed licence condition and have attached our suggested changes as an Appendix to this response. The following drafting points should also be addressed:

i) There should be consistency of terminology as between "GB System Operator" and "national electricity transmission system operator" ; and

ii) The term "national electricity transmission system area" should be defined.

10. We believe that the focus is rightly on asset replacement and constraint management requirements and the search for optimum solutions between transmission and distribution, between adjacent distribution networks and between DNOs and IDNOs and third party flexibility providers.

11. There is already an established process in CUSC for the DNO to work with the ESO on connections that could have an impact on the transmission system through the Statement of Works process and this is in the process of being modified to improve the customer experience. This is the point where the DNO, ESO and TO assess the impact of a connection and discuss potential solutions.

12. We are not advocating it on the grounds that the benefits do not outweigh the costs, but the proposed licence condition could be made to cover connections in respect of a requirement for the licensees to work together to optimise the mitigation solutions and thereby minimise any reinforcement costs. We can give examples where whole system considerations have been already applied to some connections, for instance:

- We have recommended to a DG applicant that, in addition to our quotation, they may wish to consider applying to the ESO as the TO owned the busbars at the particular substation where they wanted to connect.
- We have been told by National Grid that they advised a connectee that they could also consider applying to the DNO for the EV charging stations that are to be connected to the TO transformer tertiary windings.
- Customers at the boundary of DNO networks can apply to either network for a connection and it can sometimes be cheaper for them to connect to the DNO across the border depending on where the nearest appropriate assets are located.
- We have also approached IDNOs for a point of connection to facilitate a connection.

13. The licence condition and Guidance could be extended to connections in terms of requiring licensees (including IDNOS) to inform connection applicants of the possibility of a lower cost connection on an adjacent network, where appropriate, and also to require licensees to work together on any inter-network impact assessments to determine the optimum mitigation solution if there is there is the possibility that the issue can be solved by actions undertaken by more than one party.

14. We do believe, however, that it is better under all other circumstances to allow the connectee to decide whether they wish to compare options from the DNO, the TO, or the IDNO and leave it to them to decide on which is the best option for them to pursue. We do not foresee a need for there to be a requirement for all connections at the interface to be collaboratively designed by the licensees to determine the optimum solution for customers. Customers have choice over where they apply to connect and the licensees have a requirement to work together through the current processes to find an optimum solution if the connection to one network has a consequential impact on another.

15. Some improvements could be made when managing interactivity between transmission connection applicants and distribution connection applicants by improving the data sharing between licenses. The DNO has a requirement to provide the ESO with the MW values of connection applications at each GSP through the Statement of Works process but there is no requirement for the ESO to share any details of connection applications on the transmission side which may be competing for the same capacity. Transparency in both directions would improve the management of interactivity across the transmission and distribution boundary.

16. Looking further ahead, there is potential whole energy system benefit for our customers from investment (efficient capital deployment) and operations (distribution system operation, DSO,

flexibility) being co-ordinated across the electricity and gas networks. Northern Powergrid is working with Northern Gas Networks on the InTEGReL innovation project, which is evaluating optimal arrangements between gas and electricity solutions to heat, transport and system optimisation. However, evidence from this and other networks innovation activity has not yet been provided to justify and inform whole energy system obligations at this stage. Rather, the innovation stimulus needs to be maintained at RIIO-2 to support these more uncertain benefits from increased collaboration.

17. The future importance of whole energy system optimisation should be made more clearly in the Guidance. Currently it is restricted to footnote 22 and this would benefit from promotion in the document to point to future direction and the need for more evidence to guide future obligations or expectations for network licensees to provide greater value for customers.

***Q3. These proposals require licensees to engage and coordinate with Stakeholders. This recognises that a range of parties may have an interest in different aspects of the system, and the licensees should seek to engage with those with an interest in a given situation. Do you agree with this approach?***

18. Yes, we do engage with stakeholders as a matter of course and it is important for whole system planning in particular. This is particularly important as the options that need to be considered include third party customer flexibility solutions as well as network operator build and non-build solutions.

***Q4. Do you consider any changes or clarifications are needed in relation to industry code objectives, notably the Distribution Code and the Grid Code, to support delivery of Whole System outcomes? Specifically,***

a) ***Do you see the need for further change or clarification to the code objectives themselves, or in their interpretation, eg through introduction of a specific relevant objective in relation to Wholes System actions?***

b) ***Have you identified any interactions of these provisions with wider aspects of industry arrangements which should be considered in developing them?***

19. We expect that updates will be required; although the specifics are not yet known. The work in Open Networks should provide this detail.

20. Usefully, the Grid Code, Distribution Code and CUSC all contain requirements in relation to planning and information exchange requirements. Whilst they do not need a generalised statement about whole system planning, it is essential that any changes to existing data exchange requirements or the introduction of any new data exchange requirements are codified to ensure consistency where this is required.

***Q5. Do you believe further, specific guidance in any area, and in particular in relation to efficient connections and constraint management (eg in preparedness for electric vehicles or increasing distributed generation) would be beneficial? Please provide reasons, and where possible, evidence to support your answer.***

21. The currently proposed Guidance is sufficient at this time. We do not consider that there are any omissions or need for further clarification.

22. As mentioned in the response to Q2, consideration is already given to connections across boundaries and it would be better to allow the connectee to decide whether they wish to compare options from the DNO, the TO, or the IDNO and decide on which is the best option for them, rather than it be a requirement for the licensees to collaborate on determining the optimum solution for customers as a whole.

23. Regarding constraint management, for instance in preparedness for electric vehicles or increasing distributed generation, the important collaboration here is in the networks working together to understand each other's forecasts and agree a set of scenarios for each GSP, in the case of the transmission/distribution interface. This will then give rise to discussions on potential interventions requirements on a site by site basis where options can be considered under a regional whole system networks options assessment (NOA). The Open Networks project has been looking at both these areas and this work continues in 2019.

***Q6. For which relevant datasets or information do you consider the need for accessibility is greatest in order to deliver the Whole System benefits? Do you consider there to be any significant barriers to sharing these? Please provide specific suggestions for what you consider to be effective sharing arrangements, including required enablers and governance, such as the development of industry standards.***

24. The Open Networks project is continuing its work on whole system planning through 2019 and the specific datasets and information requirements will become clearer as this work progresses.

25. Optioneering across the boundary will be more efficient if the transmission operator has access to relevant distribution network model parameters at the interface and vice versa. This is more complicated where the licensees operate different technical systems and can involve exchanging data in spreadsheet form for each party to manually put into their own models. A more efficient approach could be for use of the same system models or the adoption of the Common Information Model across all licensees. However, either of these solutions would involve implementation costs for some of the network licensees to be outweighed by the benefits to justify such a decision.

# *Scope of application*

***Q7. Do you agree with the proposal to apply these provisions to all electricity distribution licence holders, including IDNOs, and onshore TOs, and to exclude the ESO, offshore TOs and interconnectors. Where possible, please provide reasons and evidence to support your response***

26. Yes, provided that the ESO has a complementary provisions in its licence.

27. Not all expectations apply equally to all types of licensee. For example: DNOs are unlikely to have interactions with offshore TOs and interconnectors.

28. Further consideration needs to be given to some of the illustrative examples in the Guidance where there are unexplained differences between DNOs and IDNOs. Expectations on IDNOs are significantly less than on DNOs (12 examples versus five respectively). The actions should be proportionate to the size of companies and we recognise that some IDNOs have relatively limited operations. But equally, an IDNO that is of equivalent size to a DNO or with the same range of operations (e.g. interfaces with the TO) should possess the same level of expectations. We do not understand the distinction being made by virtue of the company being an IDNO or DNO. By implementing in this similar manner for DNO/IDNO, customer benefits from whole system outcomes may be maximised.

# Appendix – Proposed changes to licence condition drafting

**Taking steps to achieving an efficient, coordinated and economical Whole System**

1. In developing and maintaining its [Distribution System]~[Transmission System], including meeting the reasonable requirements of Parties Connected to its ~~network~~[Distribution System]~[Transmission System], the licensee must take all ~~appropriate~~ reasonable steps to achieve an efficient, coordinated and economical Whole System.

**Engagement, consultation and coordination with Licensees and Stakeholders**

2. In meeting its obligation under paragraph 1 of this condition:

   a) the licensee must take all ~~appropriate~~ reasonable steps including:

      i. engaging and taking steps to co-ordinate with Distribution Licensees and Transmission Licensees;

      ii. identifying and considering any potential impacts on ~~the~~its [Distribution System]~[Transmission System] ~~system~~ that could arise from a) the licensee's actions~~,~~; b) the actions of ~~other Distribution Licensees or~~a Transmission Licen~~s~~see~~s~~; or c) the actions of ~~other persons~~Parties ~~c~~Connected ~~to the system~~;

      iii. developing with Distribution Licensees and Transmission Licensees transparent and coordinated decision-making and operational processes;

      iv. considering any potential alternative actions that may be identified by or available to any Stakeholder; and

      v. working effectively with the GB System Operator to identify opportunities that optimise synergies or mutually beneficial operational decisions across ~~network and system~~ boundaries between Distribution Systems and across boundaries between Distribution Systems and Transmission Systems, and

   b) the licensee must undertake such engagement, consultation and co-ordination with Stakeholders as may be appropriate in the circumstances ~~with Stakeholders~~.

**Information sharing and data provision**

3. The licensee must take all ~~appropriate~~ reasonable steps to:

   a) make effective use of information it obtains in fulfilling the obligation set out in paragraph 1 of this condition; and

   b) collect and make available to Distribution Licensees, Transmis~~i~~sion Licensees and Stakeholders such information as it considers useful, ~~and~~ where doing so is proportionate and consistent with its legal duties, including for the purposes of the licensee:

i. making efficient, co-ordinated and economical operational and investment decisions;

ii. facilitating competition in the supply and generation of electricity; and

iii. better assessing the impact of the licensee's actions and decisions across the Whole System.

**Whole System~~s~~ Guidance**

4. In satisfying the requirements of this condition, the licensee must have due regard to the Guidance titled "Guidance to electricity Network Licensees – Whole System outcomes".

**Definitions:**

**Distribution Licensee~~s~~:** Means any person who is Authorised by a Distribution Licence to ~~participate in the~~ distribut~~e~~~~ion of~~ electricity for the purpose of giving a supply to any premises or enabling a supply to be so given.

**Parties Connected:** Means both a Customer and an Authorised Electricity Operator.

**Stakeholders:** ~~Includes~~ Means any person~~s~~ who the licensee considers:

i. can support better outcomes for the Whole System;

ii. may have an interest in the efficient operation of its [Distribution System]~ [Transmission System] and the Whole System; or

iii. is likely to be materially impacted by any decision made by the licensees in compliance with its obligations under~~as a result of~~ this condition.

**Transmission Licensee:** Means any person who is Authorised by a Transmission Licence to participate in the transmission of electricity.

**Whole System:** For the purpose of this licence condition, means the national electricity transmission system and the distribution systems of all authorised electricity operators which are located in the national electricity transmission system operator area.