**Ofgem Consultation - Whole System Approach Dr B Murray 3 Jan**

**General -** I note the proposed license changes and guidance notes aimed at promoting a ‘Whole System’ approach to network development and operation to realise an efficient, coordinated and economic outcome. The expansion of embedded generation has resulted in the distribution networks becoming more active. Whereas the passive networks could operate as essentially radial feeders the current active networks have a potentially wider system impact that has to be managed efficiently. There are more opportunities to effect savings in network development and operation afforded by the embedded generation. There are also wider impacts on adjacent networks and the super-grid that need to be managed in conjunction with more active consumers.

The license terms and guidance notes call for a significant engagement by licensed distributors in; establishing processes; contributing to assessments; identifying alternatives and establishing funding in conjunction with other parties that may be affected. There is a requirement to develop solutions that are optimal in a whole system context. There is also a requirement to establish coordinated actions and processes and share data and designs. These requirements will result in a significant extra workload on all licensed distributors and costs that will feed through to consumers.

Whilst supporting the objectives I have some reservations about the proposed implementation approach;

* I can envisage conflicts arising between parties on proposed developments where there are winners and losers;
* Any cost implications in development and operation will need to be equitably shared;
* The scale of the potential problem areas and approaches to their resolution are as yet not well defined;
* The decarbonisation of transport and heat will have a major impact on distribution networks that needs to be coordinated exploiting demand management techniques;
* Consideration is being given to the structure of distribution tariffs to better reflect the capital and energy related costs of distribution with more emphasis on fixed access costs;
* The process needs to embrace the impact on the System Operation function and Transmission businesses.

I propose at this formative stage it would be better and cheaper to engage a panel of independent experts to work with Ofgem and licensees to scope the problem and identify arrangements to realise the optimum whole system outcome. The proposed license changes could be implemented committing the license holders to the provision of data to the panel and supporting the development of a process to realise an efficient, coordinated and economic outcome. The panel would review details of current proposed network developments to identify where there are whole system implications that require analysis and coordination. This would help to support the identification of developments that require analysis in a whole system context. The panel would have the option to commission independent studies as required. The panel would ensure consistency across the sector and avoid duplication of analysis. The panel would also take account of any implications to the System Operator function and Transmission. The panel may only need to meet monthly and would constitute a focal point for steering developments and maintaining consistency. It would also provide a focal point for engagement with planning for the changes in distribution required to realise electrification of transport and heat and decarbonisation. The panel would be charged to maintain confidentiality where required for commercial reasons.

The proposed license changes and guidance notes are still relevant with the addition of reference to engagement with the proposed panel. The panel would be administered by Ofgem and include experts with insight of the changes taking place across the sector together with technical knowledge of the options to meet new requirements. The panel would engage with the ESO and Transmission to identify any impacts on their systems and operations to ensure a whole systems approach. It would also engage with the Catapult organisation and embrace the interests of facility providers. Its initial task would be to scope the problem and identify any requirements and impediments to realising a whole systems approach. It would subsequently propose processes, systems and data requirements to enable the continuation of a whole systems approach. At this point the panel role could be reduced to addressing any new issues and conflicts that may arise.

Re Specific questions

**Q 1-** I do not thinkthatthe proposal to clarify Whole System responsibilities through licence and supporting Guidance will lead to a least cost outcome at this stage. At this formative stage I believe that a panel of independent experts should be engaged to liaise with all effected parties and establish a consensus on the key issues and approaches to manage them. This should support rationalisation and avoid duplication of effort and contain costs.

**Q2 –** The guidance notes are comprehensive and could result in a significant work load on license holders in establishing processes and engaging with other parties that may have an interest. I believe it would be more cost effective for a framework to be established centrally. This should be structured around a clear definition of what developments necessitate a whole system approach and lead to a consistent approach across the industry.

**Q3** - The requirement for licensees to engage with those with an interest in a given situation could lead to disputes. The proposal in response to question 2 should lead to a common definition and clarity.

**Q4 –** I believe that any further changes to the Distribution and Grid Codes, beyond those suggested, should await the outcome of practical experience.

**Q5 –** The decarbonisation of heat and transport will have a massive impact on the distribution and transmission systems and it appears essential that a coordinated approach to facilitate control of the demand will be required. Recent studies sponsored by Ofgem with Imperial college suggest significant savings in generation capacity requirements through demand control but not how it may be realised. Its axiomatic that flattening the demand curve reduces generation requirements. I believe health concerns will lead to a rapid take up of EVs that will necessitate a coordinated approach to manage the impact on networks and generation capacity requirements.

**Q6 –** This question refers to data access requirements and sharing arrangements to facilitate realising the optimum whole system outcome. A wide range of data is referenced including data to support prediction of supply and demand more accurately, providing greater visibility of generation, storage and demand assets, and preparing the network for upcoming challenges such as increased uptake of EVs and electric heat pumps. A standard format will need to be established to facilitate sharing. A lot of work will be required to support this process and a more limited scope restricted to data expected to benefit from a whole system approach would be a more realistic objective.

**Q7 –** The ESO is and will be impacted by the development of distributed generation and the take up of EVs and heat pumps and should be engaged in the process of advancing alternative approaches to meeting the system requirements.