

## Future Arrangements for the Electricity System Operator: its role and structure

### Consultation response to Ofgem by Smarter Grid Solutions Ltd.

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Smarter Grid Solutions is a developer and implementer of control software for active power networks. Our products and services are targeted at smart, efficient integration of distributed generation (DG) and distributed energy resources (DER) into power systems to create value for multiple stakeholders in each power system timeframe from investment planning to real time control. We also provide independent consultancy on a broader range of topics in the power sector in the UK and internationally.

Smarter Grid Solutions has spent fifteen years researching, developing, deploying and proving our approach to managing flexible, smart grids. We are recognised as leaders in this domain and have worked with, and learned from electricity distribution companies, national regulatory authorities, university research teams, generation developers, SCADA/DMS suppliers, grid edge device manufacturers, national labs and many others.

Smarter Grid Solutions broadly support the proposed changes by Ofgem for the future role of the System Operator. The separation of the System Operator from Transmission Owner part of National Grid will enable NGSO to fully embrace the role of whole system coordination, and focus on democratisation and increased competitiveness of the energy market. So, while our response focuses more on role, we think that delivering fully against that role and adapting to the many changes that emerge in the GB system, will be better addressed with business separation and the clear focus and flexibility that it brings.

- In our detailed responses below we note that the new roles encompass whole system and specifically much better coordination with the distribution companies and the system users connected to distribution networks – we think this has been inadequate to date and has presented false barriers to system participants so a very significant step change is now required as the SO takes on this whole system role.
- In that light, we believe that the SO should be open to robust challenge from a wide array of system users and stakeholders with an expectation to respond positively and proactively to reasonable expectations on change to the commercial and technical governance of system access and operations.
- We believe that the SO has not fully engaged with whole system and distribution network developments to date and has missed opportunities arising from innovations emerging and maturing from the more vibrant distribution innovation arena. We cite the example of Active Network Management (ANM), where after many years of trial, dissemination and roll-out the

SO recently published that ANM needed coordination and careful application – something that has been known by those in the distribution community for several years.

- In delivering the four key roles for the SO, we believe that there will be a much greater requirement to manage the Transmission-Distribution boundary, balance the system, and facilitate markets with Distributed Energy Resources (DER) (generation, flexible demand and energy storage at various unit sizes). This will require significant change to process, technology and commercial arrangements and we would expect Ofgem and the SO (with other stakeholders) to be very active in this area in the near future if the challenges of DER are to be addressed effectively and the value of DER exploited for the benefit of all customers.
- The need for SO coordination with DNOs in particular has been evident for some years but under-emphasised and under-resourced. This has led to ineffective connection processes (e.g. Statement of Works) and operational coordination (e.g. limits to the delivery of flexibility and energy production/storage close to consumption). We believe this is a major area for development and would expect many new developments in this area soon. We note the creation of the network trade organisation ENA TSO-DSO Programme to address this and would urge wide and appropriate stakeholder participation to make sure the SO-DSO coordinated approaches emerging from that work deliver for system users and customers.

We welcome the opportunity to discuss any aspect of our response further.



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## RESPONSES TO SPECIFIC QUESTIONS

### Chapter Two

#### ***Question 1: What are your views on our proposed objectives for the SO***

We welcome and believe it is in system user and customer interests that the role of the SO is clarified and extended as set out by Ofgem. However, this extension of SO role does not come without significant responsibility to serve all system users fairly and deliver secure and economic system operation considering and appropriately utilising all available, emerging and future options. We note some aspects worth considering in implementing these changes.

#### **Overseeing a safe, resilient, and cost-effective electricity system.**

- How the SO addresses the new areas of taking a 'whole system view' and 'managing interactions with distribution systems' will be crucial to secure the participation, on an efficient, fair and transparent basis, of existing (e.g. distributed generators), emerging (energy storage operators) and future (e.g. growing virtual and physical 'communities' of energy asset operators and managers) system users and participants. Not enough has been done in recent years to create the supporting technical or commercial frameworks and enabling systems for participants across the whole system. This includes those users and customers embedded within the distribution system and individually smaller (though collectively significant) than system and balancing market participation thresholds. This lack of proactive approach to the participants of the 'whole system' has led to missed opportunity and value and inappropriate barrier and delay to open and fair participation in the electricity system with the advantages of enhanced competition and delivery of system value that this brings.
- We note the specific terminology on the new SO role considering 'a range of options' and would encourage that this should be broadened to consideration of all prospective or feasible options so as not to rule out emerging or future economic and secure system options that deliver value to system users.

#### **Driving competition and efficiency across all aspects of the system.**

- We support the expectation for 'the SO to use competitive approaches in operating the system wherever this is in consumers' interests' and add that the measure of customer interest should be defined/weighed independently from the SO to ensure that all options are under ongoing assessment to ensure the most competitive, economic, open and flexible energy system meeting the needs of all customers.

#### **Promoting innovation, flexibility and smart/demand-side solutions.**

- We believe that much still requires to be done by the SO to meet the goal of 'opening up a number of innovative solutions to existing and anticipated system issues'. As an example of current SO philosophy, we note that the recent (2016) System Operability Framework portrayal of the innovation, planning, design and operational implementation of Active

Network Management (ANM) by DNOs to enable flexible DG connections as a problem outside the influence of the SO.

The advanced monitoring and control capabilities of ANM for effective management of Distributed Energy Resources (DER) by the SO, in a coordinated approach with DNOs, has been largely ignored by the SO to date and this is a missed opportunity for system users. With a few simple measures such as engagement, coordination, operational control integration, much more value can be delivered by ANM and other similar innovations. We note that ANM (in its widest sense as a family of tools and techniques to manage DER) will be required to monitor and control of a wide variety of DER (e.g. generation, energy storage, electric vehicles, electric storage heating, etc.). We note that the SO have identified this as an area of development so we would hope that the appropriate use of solutions such as ANM will be much more proactively considered and utilised to deliver value to system users and customers.

***Question 2: What are your views on our expectations for how the SO should seek to achieve these objectives?***

We welcome the vision for the attributes and holistic approach to fulfilment of the role of SO set out by Ofgem in paragraphs 2.4 to 2.7 from culture, proactivity, coordination, drive, close working, responsibility taking, etc. We also note that these are not new issues and that the SO has had the opportunity to build this positive approach to delivering its role since deregulation/privatisation. So, with an ambitious and visionary agenda for the sort of SO that GB now needs, we believe that Ofgem will need to seriously consider the sorts of supervisory powers and implementation, incentives, license obligations, etc. that will best achieve this outcome for the SO.

Specifically in delivering the four key evolving roles:

***Acting as residual balancer***

The statements made in the consultation only address the balancing role from the Transmission perspective. While there are operational changes required for the SO to be able to interact with distribution connection generators, there are changes in mind set required to embrace the contribution from the full spectrum of distribution connected generators – the significance of which is growing. This participation will help to ‘democratise’ and make more competitive and inclusive the electricity markets and therefore, potentially reduce the cost of balancing the network.

***Facilitating competitive markets***

There is a potential here for formally expanding the balancing services market to Distribution level, and the SO role should be exercised to ensure consistency where possible across the T-D boundary. By keeping the rules and regulations consistent ensures a simplified and clear-to-participant approach to widening the balancing services market and securing the flexibility services required for the emerging GB system.

### ***Facilitating a whole system view***

There needs to be a clear definition of how the SO is going to work in future with the DSO and a definition of clear control boundaries. While DSOs have not formally emerged yet (although it can be argued that DSO roles are already emerging), it is a clear direction that Ofgem (and BEIS in the Smart, Flexible Energy System programme) has set for the future and therefore the SO should be mindful of this when considering how to embrace the whole system role and deliver its own responsibilities while coordinating the contributions from other significant parties.

### ***Facilitating competition in networks***

We agree with the suggestions made by Ofgem to require the SO to create more competition in markets, and drive down the cost of balancing the system. We believe that fully embracing the growth of DER will avoid undue barriers to legitimate DER activity, mitigate the risks of unmanaged growth but, most importantly, harness the value of flexible DER to the system. Often DER can act as a non-wires alternative to network development so can effectively provide a competitive solution to some (but clearly not all) network development requirements.

### ***Question 3: Do you agree with our proposals for what licence changes are needed to support these objectives?***

We do believe that to fulfil the evolving (extended) and new roles may incur additional cost and that should be weighed against the additional value, from enhanced competition and efficient delivery from proper and full delivery of the SO roles. In addition, the efficiency and effectiveness of SO delivery in these new areas should be incentivised and monitored consistently with oversight of the other SO activities.

If Ofgem wish NGTO and NGSO to run as two separate companies, then they should be treated as such. The discussion around movement of staff between the two companies then becomes irrelevant as they would be required to apply for a new job in order to switch companies. There should be no suggestion of 'secondments' between the companies, or sharing of networks or files.

### ***Question 4: What are your views on the extent to which we should set specific or general obligations for the SO?***

We do not have any specific input or suggestions here and believe that if Ofgem follow past approaches to setting obligations and incentives for the SO, then this will be sufficient going forward.



## Chapter Three

***Question 1: Do you agree that greater separation between NG's SO functions and the rest of the group is needed?***

***Question 2: What are your views on the additional separation measures we are proposing?***

***Question 3: What are your views on our proposed approach for implementing these changes?***

We agree in principle with the separation measures proposed in the consultation and do not have anything further to add except as stated above. With a much clearer and substantial role for SO being established then the TO and SO should operate as entirely separate entities and be treated as such in regulation, operation, incentive, management, etc.

## Chapter Four

***Question 1: What are your thoughts on our proposed approach for implementing the proposed changes set out in this consultation?***

It is clear from the consultation that the separation of TO and SO has already been discussed at length with National Grid, and the relevant assessment of the situation has been performed in order to estimate the timescales and cost of such a large transition.

The proposed date for formal separation of SO and TO functions is April 2019. National Grid must do all that it can ahead of April 2019 to prevent any delays to the ambitious goals set out in the recent Ofgem and BEIS consultation regarding flexible energy systems.

We ask if it is the intention to fix the SO role ahead of any establishment of DSO obligations and other aspects of smart flexible system design. If so, there must be detailed discussions with the DNOs in order to ensure that their issues and concerns are considered. NGSO cannot provide whole system coordination alone, and there must be close working alongside DNOs to ensure that the potential for whole system flexibility is realised. This is important, regardless of whether DNOs will form the role of DSOs or not.

***Question 2: What further evidence should we consider in finalising our impact assessment of the proposals on the SO's roles and level of independence?***

We have no further evidence to offer.