ofgem Making a positive difference for energy consumers

ESO Roles and Principles

Consultation - supplementary appendices

Publication date: 15 December 2017

Contact: Grendon Thompson

Team: SO Regulation Team

Tel: 0207 901 1899

Email: electricitySOreform@ofgem.gov.uk

Overview:

The Electricity System Operator (ESO) sits at the centre of our energy system. As the system evolves, we believe the role and structure of the ESO needs to evolve with it. We are proposing to create a legally separate ESO function within National Grid plc in order to mitigate conflicts of interest, and to ensure it is well positioned to both respond to and help facilitate the energy system transformation.

A new regulatory framework for the ESO is key to achieving aims of a legal separation. Our proposals represent a material change from the previous approach and include: an updated set of roles and principles for the ESO (outlined in this document); a requirement to develop forward-looking plans with industry, as well as transparent performance metrics; the introduction of a new ESO Performance Panel; and a move away from discrete mechanistic financial incentives towards a broader, more evaluative financial incentives approach.

This document provides further explanation of the SO's roles and principles, which underpin our new regulatory framework. Since first publishing the ESO's roles and principles in July 2017, we have made a number of changes in this iteration. These have predominantly focused on role one, which has been expanded to better reflect the ESO's system operability role.

Associated documents

The Electricity System Operator Regulatory and Incentives Framework from April 2018 (15 December 2017)
https://www.ofgem.gov.uk/electricity/transmission-networks/electricity-so-reform

A more independent ESO

Statement on the future of Electricity System Operation (12 January 2017)
https://www.ofgem.gov.uk/system/files/docs/2017/01/statement_on_the_future_of_electricity_system_operation.pdf

Future arrangements for the electricity system operator: its role and structure (12 January 2017)
https://www.ofgem.gov.uk/publications-and-updates/future-arrangements-electricity-system-operator-its-role-and-structure

Future Arrangements for the Electricity System Operator: Response to Consultation on SO Separation (3 August 2017)
https://www.ofgem.gov.uk/publications-and-updates/future-arrangements-electricity-system-operator-response-consultation-so-separation

Future Arrangements for the Electricity System Operator: Informal Consultation on ESO Licence Drafting (1 December 2017)
https://www.ofgem.gov.uk/system/files/docs/2017/12/licence_separation_informal_consultation.pdf

The ESO regulatory and incentives framework

Future arrangements for the electricity System Operator: the regulatory and incentives framework (7 February 2017)
https://www.ofgem.gov.uk/publications-and-updates/future-arrangements-electricity-system-operator-regulatory-and-incentives-framework

Future Arrangements for the Electricity System Operator: Working Paper on the Future Regulatory Framework (11 July 2017)
https://www.ofgem.gov.uk/system/files/docs/2017/07/future_so_reg_framework_july_2017_working_paper.pdf

Interactions and links

A Smart, Flexible Energy System – a call for evidence, (10 November 2016)
https://www.ofgem.gov.uk/publications-and-updates/smart-flexible-energy-systemcall-evidence

Open letter on the RIIO-2 Framework (12th July 2017)
https://www.ofgem.gov.uk/publications-and-updates/open-letter-riio-2-framework

Contents

1) SO Roles and Principles

Introduction

1.1. The purpose of this appendix is to provide further explanation of the SO's updated roles and principles, which we introduced in Chapter 3 of the main consultation document. The roles and principles are underpinned by the SO's binding licence obligations – particularly the modifications to the C16 licence condition which took effect from 1 June 2017[1].

1.2. This appendix provides updated guidance on the behaviours or outputs we expect to see when the SO fulfils its roles. Such guidance should be considered as a non-exhaustive list of examples of how we currently envisage the SO to fulfil its roles when undertaking day to day actions to operate and balance the GB transmission system.

1.3. We've also structured the guidance to show what we expect to see as evidence of the SO's compliance with its obligations under Standard Licence Condition C16. In Chapter 2 of this appendix we've mapped the guidance directly to the C16 text. The guidance will inform any future decisions taken by the Authority when considering possible investigation and enforcement issues arising out of non-compliance with the relevant licence obligations[2].

1.4. This updated guidance relating to compliance with C16 updates the previous guidance that was first issued as part of our July 2017 Working Paper on the SO's Future Regulatory Framework[3]. The guidance in this document should be considered as draft guidance for consultation. It will be finalised and therefore come into effect when we publish our final decision in early 2018. Until then, the version of the guidance published in July 2017 will continue to have effect, and compliance with it may be taken into account from the date of its issue. In the event that the SO does not meet its licence obligations it may be found to be non-compliant. In the event of formal enforcement proceedings finding a breach of one or more relevant licence conditions there may subsequently be made an order for payment of a financial penalty and/or consumer redress. The outcome of such procedures would be made publicly available.

1.5. Many of the existing licence obligations form part of the future regulatory framework and therefore the guidance will apply until stated otherwise. However, it

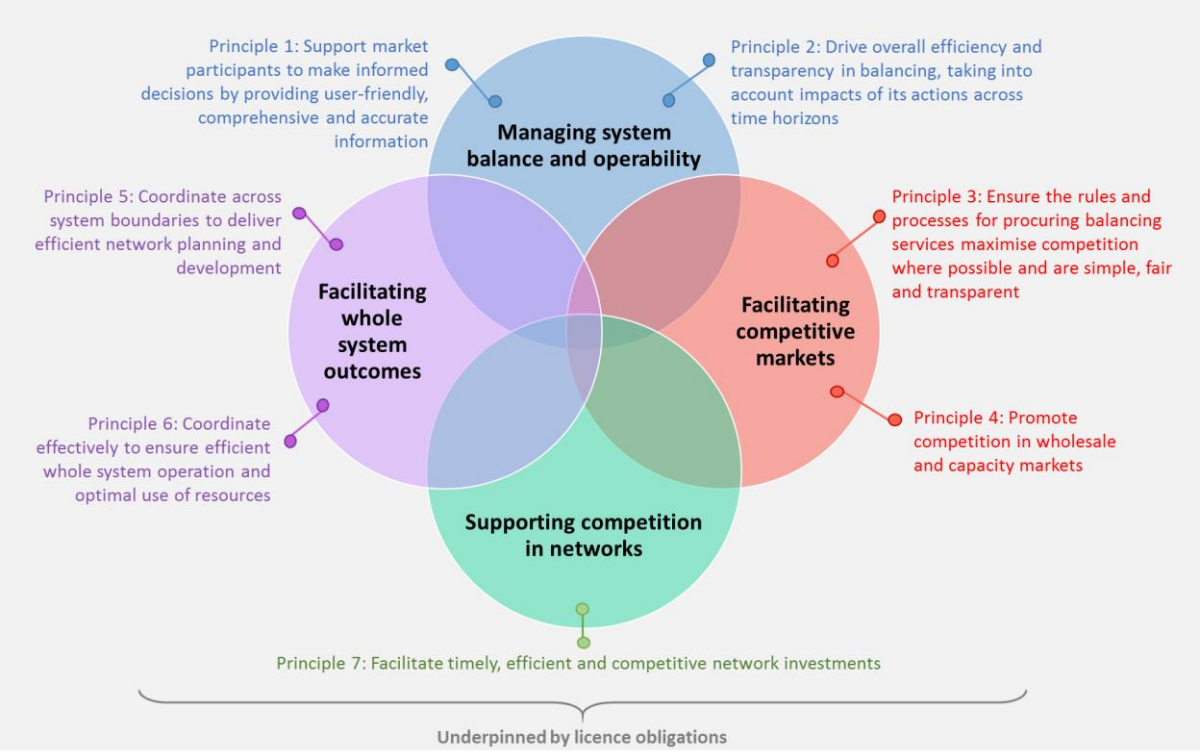
[1] https://www.ofgem.gov.uk/system/files/docs/2017/04/so_incentives_-_decision_standard_licence_conditions_0.pdf
[2] All decisions taken by the Authority relating to enforcement matters are subject to its Enforcement Guidelines and Penalty Policy.
[3] The original guidance can be found in our July 2017 Working Paper on the future regulatory framework (https://www.ofgem.gov.uk/ofgem-publications/118930)

will be kept under review and further updated when necessary, for example, if in the future we provide similar guidance to other network companies we may need to update the ESO's guidance to ensure alignment.

Summary of ESO Roles and Principles

1.6. In the rest of this chapter we set out further details of the four roles we envisage for the SO. Throughout all of these roles are the cross-cutting themes of ensuring the SO provides most value to consumers (ie, protecting consumers from undue costs), transparency in its actions, and high levels of engagement with industry and other network operators. Although for presentational purposes we describe each role in turn, in reality the roles have a large degree of overlap and interaction. Alongside the roles are the principles and predominant legal obligations underpinning these. The principles are drafted with a high level of generality, with the intention that they should be considered as overarching requirements or behavioural standards that can be applied flexibly to a rapidly changing electricity sector. The SO's licence conditions underpin the roles and principles and remain the legal obligations that the SO must fulfil.

Figure 1: Summary of ESO Roles and Principles



Role 1: Managing system balance and operability

1.7. In balancing the electricity transmission system, we believe the SO should be helping the market to balance the system as much as possible (under principle 1)

and where it does need to step in to take any actions to secure the transmission system (under principle 2) it should be considering impacts across time horizons to ensure the actions it does take drive overall efficiency.

Principle 1: Support market participants to make informed decisions by providing user-friendly, comprehensive, and accurate information

Predominantly underpinned by licence conditions:

C16 1(e) Publishing information which the licensee holds to enable electricity market participants to make efficient operational and investment decisions

C16 1(f) Producing and publishing accurate and unbiased forecasts

1.8. Market participants face financial incentives to ensure that what they produce or consume matches what they sell or buy. However, unexpected deviations in generation or demand mean that the market will not always be able to deliver a balance between demand and supply. This can lead to changes in system frequency, which if not dealt with, can lead to system outages. The SO therefore plays a critical role in taking actions to keep the system frequency stable when the market is unable to balance.

1.9. Therefore, the overall efficiency of system balancing includes both the costs incurred by the SO and the costs incurred by market participants to balance their positions. We expect the SO to support the market to self-balance where possible, thereby minimising the SO's own role as residual energy balancer.

1.10. We think the SO should publish any relevant information it has that would help market participants to balance their own positions. In doing so the SO should consider the most effective mechanism for publishing information and avoid duplication or fragmentation with established platforms (for example BMRS). We think this would reduce the natural asymmetry of information between the SO and other market participants and provide market participants with the tools they need to make informed decisions. We also think the SO needs to be more transparent around the actions it takes so market participants can factor this into their decision-making. Together, we think this will help market participants to balance the system as much as possible, thereby reducing the SO's role as a residual energy balancer.

1.11. In general, we think the information the SO collates and provides to the market should be:

- **User-friendly** - the SO should be regularly and actively engaging with market participants to understand what content market participants need, the preferred format and frequency. It should then tailor its information provision accordingly to ensure it remains as user-friendly as possible.

Linked to this, the SO should ensure that the information it provides on its website can be easily accessed and understood by market participants. For instance the SO could publish a comprehensive 'list' of the information it publishes, the timings of any forthcoming related publications and where they will be published on its website so market participants can access the information they need.

- **Comprehensive** – the SO should collate as much information as necessary (including speaking to stakeholders) to gain a clear picture on future trends/needs. It should be releasing sufficient information about the system and its actions (wherever it is safe and reasonable to do so) in order to help market participants make informed decisions. Wherever it cannot publish the information that a market participant has requested, the SO should respond and communicate this for clarity. For instance, the SO could consider creating a publicly available process for stakeholders to propose changes or additions to the information published by the SO. The SO could evidence how it has taken into consideration any such requests including explanations for withholding any requested information. The SO may wish to include this information as part of its regular performance reporting.

- **Accurate** - the SO should maintain robust IT systems and seek continuous improvements to its processes to ensure that this information (particularly forecast data, for example on wind generation and demand) is accurate and unbiased[4]. Inaccurate system forecasts can create uncertainty and risk for the SO and market participants. This can lead to balancing actions being taken ahead of time unnecessarily when the market could have been able to respond. This can undermine short-term market signals, which can have a knock-on detrimental impact on the investment decisions made by market participants in the long run. For instance, the SO could conduct regular ex-ante assessments of its forecasting, analysing how accurate its forecasting has been and then evidence to industry how it has addressed any significant deviations and modified its methodology to improve its forecasting ability. Doing so will help to ensure information remains accurate.

Principle 2: Drive overall efficiency and transparency in balancing, taking into account impacts of its actions across time horizons

Predominantly underpinned by licence conditions:

[4] We define accurate and unbiased as follows:
- Accurate – information that is correct at the time of publication and as close as reasonably possible to the actual value.
- Unbiased – information that is not skewed in any way and is as accurate/close as reasonably possible to the true value.

C16 1(a) Taking the most efficient actions to balance the transmission system based on the information available to the licensee at the time

C16 1(b) Taking into account the impact such actions have on competition in the wholesale electricity market and on the total system

1.12. The SO is required to operate the transmission system safely and securely in real time. In doing so, the SO plays a critical role, taking actions to keep the system frequency stable when the market is unable to balance. The SO is also responsible for taking balancing actions on different parts of the transmission network to deal with system operability issues and network constraints. The SO undertakes this role using the Balancing Mechanism (BM) and through procuring a number of additional balancing services (or ancillary services) to ensure the needs of the system can be met. In order for the SO to do this as efficiently as possible, it should be taking the most economic action that solves the system's balancing and/or operability need.

1.13. We expect the SO to strike an appropriate balance between short-term reductions in balancing costs and the longer-term development of balancing services markets. Longer-term considerations include, for example, developing new markets or simplifying existing product requirements. These developments may realise greater cost savings in the future; therefore, we would like to see the SO thinking across time horizons and taking a strategic approach to drive overall efficiency in system balancing processes.

1.14. In order to drive overall efficiency in system balancing processes, we think the SO should consider the following when making any decisions. Firstly, the SO should be planning for future energy market scenarios and pre-empting future energy system needs. Specifically the SO should be taking a risk-based approach to plan and mitigate against any adverse market conditions that might be expected to arise in the future. The SO should also consider the evolution of the system when undertaking any balancing actions in the present. Such considerations may include the types of resources expected to be available to provide balancing services and the types of services that the SO may require in the future.

1.15. Secondly, the SO should be taking into account the impact its balancing actions have on the market (in particular, the possible impacts on market participants' behaviour and decision making) and wholesale costs both in the short and in the medium to longer term.

1.16. In order to demonstrate compliance with this principle, the SO should consider developing and applying a clear and transparent internal 'decision framework' that would take into account point 1.14 and 1.15 above. We would expect the SO to use this decision framework to underpin the types of internal analysis that will be used to derive its optimal procurement strategy for balancing and ancillary services (for

example, in determining the volume of balancing services to be procured closer to real-time vs the volume procured further in advance).

1.17. The SO may wish to refer to this framework and detail its development and application as part of the SO's regular performance reporting. We expect the SO to remain transparent and, if requested by the Authority, show clear documentation of this framework. The SO could include, as a part of the framework, the nature of any engagement or initiatives to improve market participants' ability to balance efficiently prior to gate closure. The SO could also set up an audited process by which it could conduct regular reviews of the framework to take into account and embed any lessons learned from its past application.

Role 2: Facilitating competitive markets

1.18. We expect the SO to be encouraging and facilitating competition in all markets that it can affect. In particular, principle 3 covers the balancing and ancillary services markets where the SO is the lead and principal buyer and principle 4 covers the remaining markets that the SO can affect (ie, wholesale and capacity markets).

Principle 3: Ensure the rules and processes for procuring balancing services maximise competition where possible and are simple, fair and transparent

Predominantly underpinned by licence conditions: C16 1(g) Ensuring the procurement of balancing services is transparent C16 1(h) Ensuring that the technical requirements of balancing services do not restrict new and existing balancing service providers from competing in those services C16 1(i) Anticipating future national electricity transmission system requirements by using and developing competitive approaches to procuring balancing services wherever this is in the best interests of current and future consumers

1.19. As mentioned previously, in addition to running the BM, the SO develops and procures a number of additional balancing services to ensure the needs of the system can be met. The design of these services and approach to procurement can have a significant impact on the revenue available to different providers and the ability for new entrants to compete with existing providers. This can have a further impact upon short term price signals and revenues in the main electricity market.

1.20. Although the SO's approach to procuring balancing services must follow the high level framework set out in the Transmission Licence C16 statements[5] (which we approve each year), it has significant scope and flexibility in the design of these services.

1.21. We think the SO should ensure its procurement of balancing services, including the rules and processes, maximise competition where possible, and are simple, fair and transparent. We explain each in further detail below:

- **Competitive and market-based**: the SO should procure ancillary services competitively to maximise inclusiveness and to ensure open and fair competition wherever possible. Examples of optimal market-based structures the SO could consider include tenders or auctions. Where there is currently insufficient competition for market-based approaches, the SO should consider what steps should be taken to develop a market for that service in the future. Where the SO procures balancing services through a non-competitive route, there should be clear justifications (in terms of the impact to consumers) for why this is better for consumers' interests than a competitive approach.

- **Simple**: the SO should rationalise its product offering, ensuring products are aggregated wherever there is overlap. Products should also have similar or coordinated procurement timings to provide parties with greater certainty when bidding into different mechanisms. The SO should also ensure it is sending clear price signals in order to procure an efficient mix of balancing providers.

- **Fair**: the SO should limit, wherever possible, exclusivity requirements to enable providers of balancing services to stack revenue streams. We recognise that in some cases, exclusivity agreements are warranted but the SO should consider regularly reviewing technical requirements to ensure they remain fair, providing a justification to the market wherever they are used. The SO could also consider creating a publicly available process by which potential new and existing balancing service providers may test any existing restrictions (ie to pitch for their product). The SO should also procure ancillary services in a way that facilitates existing and new providers to compete on a level playing field, regardless of size or type. It is the SO's responsibility to ensure that its service / technical requirements remain responsive to changing technologies and innovation and do not unduly restrict access to certain market participants.

- **Transparent**: the SO should communicate its expected procurement needs to the market, giving the market as much notice as possible. The SO should also be able to justify its decisions to procure a particular portfolio of products to the market. It should also strive to ensure that market

[5] http://www2.nationalgrid.com/uk/industry-information/electricity-codes/balancingframework/transmission-license-c16-statements/

participants have confidence in the SO's choice of procurement methods/activities. For instance, the SO could comply with this point by publishing on its website the total amount of various products it procures through bilateral contracts so market participants have a more accurate view as to when they might be called on. Where the SO isn't able to publish this information, it should justify why that information is being kept from the public domain.

1.22. We think the SO could achieve 1.21 above by publishing on its website the high-level approach it takes to procure balancing services, including an explanation for the preferred make-up of the portfolio of products, the associated timeframe and reasoning for restrictions applying to each. We would expect the SO to follow this approach for each contract entered into. If requested by the Authority, the SO should be able to show clear documentation and if necessary justification of any deviation from this approach.

Principle 4: Promote competition in wholesale and capacity markets

Predominantly underpinned by licence conditions:

C16 1(e) Publishing information which the licensee holds to enable electricity market participants to make efficient operational and investment decisions

C16 1(i) Anticipating future national electricity transmission system requirements by using and developing competitive approaches to procuring balancing services wherever this is in the best interests of current and future consumers

1.23. In addition to running the BM and procuring ancillary services, the SO also has a number of additional roles outside of direct balancing. In particular, the SO is a party to the Balancing and Settlement Code (BSC), and also has a fixed representative on the BSC Panel. The SO is the code administrator for the Connection and Use of System Code (CUSC), and the Grid Code and a party to the Distribution Code. The SO is able to propose changes to these codes, provide its expertise and analysis to aid industry discussions, and influence the final recommendations which go to the Authority. It is also the delivery body for the Government's Electricity Market Reform (EMR).

1.24. In order to facilitate competitive markets, we believe the SO should be encouraging and actively driving forward competitive solutions and approaches wherever competition would drive efficiency and lead to consumer benefits. For instance, we expect the SO to play an active role in ensuring the code arrangements named under 1.23 promote competition. We expect the SO to identify and deliver actions to remove market distortions, at both transmission and distribution levels, providing a more level playing field for all market parties.

1.25. We believe the SO should have an active role in understanding how market arrangements interact and in identifying opportunities to make trade-offs or access synergies across mechanisms that can lead to greater competition and better consumer outcomes overall.

1.26. For all interactions the SO has with market arrangements, we expect the SO to promote competition by:

- Engaging more actively with industry to understand the nature of the challenges and distortions to competition in code arrangements, including in regards to the methodologies for use of system charging.

- Proposing and supporting pro-competitive modifications to industry codes where these are in the interests of current or future consumers. Such modifications should take a holistic view of the electricity system and ensure balancing services providers are able to compete on a level playing field. We think a particular key role for the SO is to identify and propose changes to code arrangements to ensure that new providers are able to compete on a level playing field with existing providers. We also think the SO should be supporting modifications raised by industry by providing a detailed level of analysis, modelling and scenario building as part of its impact analysis. This analysis should stand up to rigorous challenge and avoid claims of bias.

1.27. Wherever it isn't in the best interests of current or future consumers to promote competition, we expect the SO to be able to justify and rationalise any decision it takes to follow a non-competitive route with code arrangements.

Role 3: Facilitating whole system outcomes

1.28. It is important for the SO to coordinate effectively with other parties to deliver the most efficient and economic outcomes for the whole system[6]. This includes coordinating with others across network boundaries when undertaking network planning and development (principle 5) and coordinating with others in ensuring efficient whole system operation and optimal use of resources (principle 6). Network planning and system operation remain highly interlinked and SO processes must reflect this.

Principle 5: Coordinate across system boundaries to deliver efficient network planning and development

Predominantly underpinned by licence conditions:

[6] Also referred to elsewhere as 'total system'. Although the focus of this guidance is on the whole electricity system, across all voltage levels, we anticipate a need for more thinking to be undertaken in the future on the need for coordination across the electricity and gas systems.

C16 1(c) Considering the impact any action would have on the total system

C16 1(d) Optimising the timing of transmission outages under the outage plan on the national electricity transmission

C16 1(e) Publishing information which the licensee holds to enable electricity market participants to make efficient operational and investment decisions

1.29. We expect the SO to collaborate, communicate and coordinate with other network operators to identify and support the delivery of the most efficient network planning and development solutions for the whole system. This should be built on a foundation of mutually agreed and clearly defined roles across the transmission-distribution interface, which minimise unnecessary overlap or duplication. This requires the SO to participate in, and drive forward, industry-wide processes (and encourage other parties to do so).

1.30. The types of efficient planning and development solutions that we may expect to see include full consideration of build and non-build options that include flexible, smart investments and which may mitigate the need for network reinforcements. Similarly, we may expect to see progression of solutions at distribution level that could relieve transmission network challenges and transmission level solutions that could relieve distribution network challenges. In such situations we expect the SO and other regulated network companies to consider how procuring solutions from one and other could lead to minimising costs and maximising consumer benefits across the whole system.

1.31. In identifying the most efficient network planning and development solutions, we expect the SO to work closely with other network operators. Such collaborative work may include: gathering and sharing relevant information (including forecasts) with each other and industry; co-developing whole system network models; putting in place processes to proactively identify opportunities for efficiency savings and consumer benefits across network boundaries; and coordinated assessments of whole system resilience and operability, including identifying implications associated with greater volumes of distributed energy resources.

1.32. Once identified, it is important that the SO supports and, where relevant, drives forward the delivery of the most efficient network planning and development solutions. We therefore expect the SO to:

- Engage with other network operators in developing plans that present a coordinated view of whole system's network development needs
- Ensure appropriate frameworks and contractual arrangements exist to optimise investments across the transmission-distribution boundary

- Work with other network operators to deliver efficient constraint management processes and connection arrangements (including the statement of works process) which meet the needs of connectees across the system

- Develop processes to support timely resolution and avoidance of system issues, for example, working with other network operators and industry to ensure whole system perspectives are incorporated into network emergency and restoration plans.

1.33. In addition, in undertaking its current role as the manager and gatekeeper of transmission system outages we expect the SO to optimise the timing of transmission outages to maximise efficiencies across the system as a whole.

Principle 6: Coordinate effectively to ensure efficient whole system operation and optimal use of resources

Predominantly underpinned by licence conditions:

C16 1(a) Taking the most efficient actions to balance the national electricity transmission system based on the information the licensee had at the time

C16 1(b) Taking into account the impact such actions have on competition in the wholesale electricity market and on the total system

C16 1(c) Considering the impact any action would have on the total system

1.34. We expect the SO to take a whole system perspective in operating the transmission network. In doing so, the SO should participate in, and drive forward, industry-wide processes (and encourage other parties to do so) to clearly define roles and procedures that ensure appropriate optimisation, dispatch and monitoring of resources connected across the system.

1.35. The SO should work with other network operators to build a common understanding of where actions taken by one system/network operator could have cross-network impacts (both positive and negative). This may include sharing operational information and developing processes to ensure each party takes operational actions which are consistent with whole system efficiency.

1.36. The whole system approach should provide the SO with opportunities to exploit synergies or mutually beneficial operational decisions across transmission and distribution voltage levels. We therefore expect the SO to work with other network operators to identify instances where a single action, for example, could address constraints on both the transmission and distribution networks. Once identified, the

SO should coordinate with other network operators to optimise these synergies and therefore maximise consumer benefits.

1.37. We expect the SO to develop processes with other network operators that ensure optimal resource utilisation across the network. For example, this should include putting in place contractual or market arrangements and information sharing protocols that support optimised resource use and enable all energy resources to maximise the range of value streams accessible to them.

Role 4: Supporting Competition in Networks

Principle 7: Facilitate timely, efficient and competitive network investments

Predominantly underpinned by current, as well as proposed, licence conditions: 1.1. Concluding ITPR licence changes to enhance the role of the SO - https://www.ofgem.gov.uk/sites/default/files/docs/2015/09/itpr_decision_cover_letter_0.pdf

1.38. We expect competition in network investment to bring value for consumers in terms of capital and operational cost savings and drive innovation across the asset development and operations process, including financing. Competition may be demonstrated by, but not limited to, the creation of a strong competitive field through attracting new entrants and new approaches to the design, financing, construction and operation of transmission infrastructure.

1.39. The SO should use the Network Options Assessment[7] (NOA) to identify long-term electricity system needs, develop and assess options to meet these needs and assess whether projects meet the criteria for competitive delivery. As part of this, we expect the SO to demonstrate that it has undertaken a thorough assessment of possible options. This may include, but not be limited to, proposing innovative solutions not brought forward by TOs, proposing alternative build solutions, and coordinating cross-regional solutions, and driving the early development of these solutions. We consider that the SO should take a more proactive and holistic approach to system planning, in line with the original intentions of our ITPR project, to facilitate timely and efficient network development.

1.40. We have previously proposed specific additional roles for the SO to support our proposed Competitively Appointed Transmission Owner (CATO) model for

[7] The NOA is a licence obligation under National Grid's System Operator (SO) role which has come from the Integrated Transmission Planning and Regulation (ITPR) project. Further details can be found here: http://www2.nationalgrid.com/UK/Industry-information/Future-of-Energy/Network-Options-Assessment/

competitive delivery. In particular these have been in relation to the undertaking of preliminary works (including, but not limited to, works in relation to surveying, early design, planning permissions, and consents) for projects that meet the competitive tender criteria and are due to be constructed in the RIIO-T2 period and beyond. We have been working with Government to introduce relevant legislation in order to implement the CATO regime. As noted in our recent open letter,[8] legislation related to EU exit will likely dominate the Parliamentary timetable, so an opportunity to introduce this legislation in the immediate future currently looks unlikely. We will take forward further development of the CATO regime (and the next iteration of CATO policy) once there is greater clarity on the timing of the enabling legislation. In the interim, we continue to consider that there are significant benefits to consumers in introducing competition into the delivery of new, separable and high value electricity transmission projects, and consider that the SO should support future delivery models, eg through its role in the NOA, as well as through information provision.

[8] Update on Extending Competition in Transmission (June 27th 2017) https://www.ofgem.gov.uk/system/files/docs/2017/06/update_on_extending_competition_in_transmission.pdf

2) Mapping the guidance to Standard licence Condition C16

The table below is intended to support the SO's interpretation of the guidance in Chapter 1 through mapping it directly to the relevant C16 licence modifications[9]. In Chapter 1, we indicated which licence obligations predominantly underpin each principle. However, as shown below, there are elements of the guidance that cut across several licence obligations. Figure 2 also maps the different aspects of the modified C16 licence conditions to the Roles and Principles.

Mapping the guidance to the C16 licence conditions
a) taking the most efficient actions to balance the national electricity transmission system based on the information the licensee had at the time We expect the SO to minimise the overall costs of balancing the system by taking the most efficient actions. The most efficient actions are the most cost-effective actions that satisfy the needs of the SO. However, in making this assessment we expect the SO to consider the balance between short term and long term cost minimisation, future needs of the system, the behaviours and incentives for current and prospective market participants and impacts across voltage levels. For further details, refer to paragraphs 1.13, 1.14, 1.15, 1.16, 1.17 under principle 2 and paragraphs 1.35, 1.36, 1.37 under principle 6.
b) taking into account the impact such actions have on competition in the wholesale electricity market and on the total system, and in doing so, the licensee shall: **(i) compare the costs of actions outside the balancing mechanism with the likely costs of actions inside the balancing mechanism; and** **(ii) consider the likely impact any such action would have on:** **(aa) wholesale electricity market price signals;**

[9] https://www.ofgem.gov.uk/system/files/docs/2017/04/so_incentives_-_decision_standard_licence_conditions_0.pdf

(bb) the behaviour of electricity market participants; and

(cc) the efficiency of the national electricity transmission system;

The SO's balancing actions may have impacts on competition in the wholesale market and wider consequences for the whole electricity system. We expect the SO to take these potential impacts into consideration when deciding which actions to take. Specific considerations may include the balance between short term and long term cost minimisation, future needs of the system, the behaviours and incentives for current and prospective market participants and impacts across voltage levels.

For further details, refer to paragraphs 1.13, 1.14, 1.15, 1.16, 1.17 under principle 2 and paragraphs 1.35, 1.36, 1.37 under principle 6.

c) considering the impact any action would have on the total system;

We expect the SO to take broad consideration of the impacts of its actions on the total electricity system. This includes close working with other network operators to identify the most efficient network planning and development solutions; drive forward the delivery of the most efficient network planning and development solutions; build a common understanding of where actions taken by one system/network operator could have cross-network impacts; exploit synergies or mutually beneficial operational decisions across transmission and distribution voltage levels; and develop processes with other network operators that ensure optimal resource utilisation across the network.

For further details, refer to paragraphs 1.29, 1.30, 1.31, 1.32 under principle 5 and paragraphs 1.34, 1.35, 1.36, 1.37 under principle 6.

d) optimising the timing of transmission outages under the outage plan on the national electricity transmission system;

When planning transmission outages the SO should consider how the timings of transmission outages may optimise consumer benefits (or minimise costs) by considering the impacts of outages across the whole electricity system. This should involve engaging with other network operators when developing plans.

For further details, refer to paragraphs 1.32 and 1.33 under principle 5.

e) publishing information which the licensee holds to enable electricity market participants to make efficient operational and investment decisions;

As there is a natural asymmetry of information between the SO and market participants, we expect the SO to engage with market participants to understand which information they would like (and the format and frequency they require). We expect the SO to publish as much of this information as possible. This applies to all actions taken inside and outside of the Balancing Mechanism (BM), for all interactions it has with market/code arrangements, and all interactions it has with other market participants (network operators), throughout all of its various roles as SO.

For further details refer to paragraphs 1.10 and 1.11 under principle 1, paragraphs 1.21 and 1.22 under principle 3, paragraph 1.26 under principle 4, paragraph 1.31 under principle 5, paragraphs 1.35and 1.37 under principle 6 and paragraph 1.40 under principle 7.

f) producing and publishing accurate and unbiased forecasts of:

(i) indicated margin;

(ii) demand;

(iii) wind generation output; and

(iv) balancing costs;

We expect the SO to provide market participants with the tools they need to make informed decisions and balance their own positions as best as possible, thereby reducing its own role as residual balancer. In order to do this, the SO should provide accurate and unbiased forecasts and maintain robust IT systems, seeking continuous improvements to its processes to ensure the information it releases remains as accurate and unbiased as possible.

We define accurate and unbiased as follows:

- Accurate – information that is correct at the time of publication and as close as reasonably possible to the actual value. Conversely, inaccurate information would be anything that sends an incorrect signal to market participants and causes market participants to react differently than they would have done had they been given true and accurate information (eg taking unnecessary balancing actions ahead of time)

- Unbiased – information that is not skewed in any way and is as accurate/close as reasonably possible to the true value.

For more information, refer to the paragraphs 1.10 and 1.11 under principle 1.

g) ensuring the procurement of balancing services is transparent;

We expect the SO to be as open as possible about its actions (inside and outside of the Balancing Mechanism (BM)) and its expectations of the market, in order to reduce the information asymmetry between the SO and market participants. This will help market participants balance their own positions and make efficient investment decisions as well as giving them confidence in the SO's procurement methods and activities.

For further details, refer to paragraphs 1.21 and 1.22 under principle 3.

h) ensuring that the technical requirements of balancing services do not restrict new and existing balancing service providers from competing in those services;

We expect the SO to remain technology neutral and create a level playing field for different service providers (old and new) to compete. We think the SO could achieve this by simplifying it's product offering and limiting exclusivity and/or technical requirements for balancing services wherever possible to ensure fair and open competition amongst all players regardless of size or type.

For further details refer to paragraphs 1.21 and 1.22 under principle 3.

i) anticipating future national electricity transmission system requirements by using and developing competitive approaches to procuring balancing services wherever this is in the best interests of current and future consumers.

We believe using competitive approaches wherever possible has the potential to maximise consumer welfare. We think the SO should be thinking about where it can deploy competitive approaches (eg tenders and auctions) when it is taking actions inside and outside the Balancing Mechanism (BM). The SO should be anticipating future system trends/needs by collating as much information as possible.

More generally, the SO should be promoting competition in all interactions it has with market arrangements by engaging with industry and supporting pro-competitive modifications where this is in the interests of consumers.

For more detail, refer to paragraph 1.11 under principle 1, paragraphs 1.21 and 1.22 under principle 3 and paragraphs 1.24, 1.25, 1.26 and 1.27 under principle 4.

Figure 2: Mapping licence conditions to principles and roles