

Future systems and network regulation



30th March 2023

Agenda



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1	Welcome	Jennifer McGregor	0930-0935
2	Introduction	Rebecca Barnett	0935-0940
3	Overview of FSNR	Jane Dennett-Thorpe /Gavin Knott	0940-1010
4	General FSNR Questions	Jane Dennett-Thorpe /Gavin Knott	1010-1025
5	Introduction to the Workstreams	Jennifer McGregor	1025-1030
6	Workstream 1: Strategic Planning: critical enablers and regulatory options	Dzhordzhio Naldzhiev	1030-1050
7	Workstream 2: Alternative simpler approaches to incentive regulation	Teresa Romano	1050-1110
8	Workstream 3: Maintaining a stable approach to risk and return in a period of transition	Chris Connor	1120-1140
9	Workstream 4: Designing the process for price review: lessons learned from RIIO	Fraser Glen	1140-1200
10	Workstream 5: Digitalisation and its role in unlocking smart regulation	Dzhordzhio Naldzhiev	1200-1220
11	Final Questions	Jane Dennett-Thorpe /Gavin Knott	1220-1235
12	Observations and next steps	Jane Dennett-Thorpe /Gavin Knott	1235-1245



Introduction to the FSNR Consultation



Gavin Knott, Jane Dennett-Thorpe



- September 2022: review of the existing network regulation regime announced.
- March consultation: seeks your views on whether the ongoing and increasing transformation of the energy system merits large-scale change in the price control frameworks & the form that could take

There are several changes which may require and/or enable changes to price controls:

Need: step change in amount, location, timeliness, and type of investment needed System-level plan: potential holistic and strategic network planning bodies Digitalisation: new information-gathering and processing capabilities

Wider system complexity and uncertainties

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The UK government has committed to decarbonising the electricity system by 2035, en route to a net zero economy in 2050.

 New electricity supplies need new transmission infrastructure and a potential 2-3 times increase in peak demand vs current levels by 2050

System peak demand and the impact of DSR



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- New electricity supplies need new transmission infrastructure and a potential
 2-3 times increase in peak demand vs current levels by 2050
- There will also be a decline in gas use of 40-60% by 2035

Natural gas demand reductions in electricity generation, domestic heat, and industry, showing a 40-59% reduction between 2020 and 2035.



Source: Analysis of Committee of Climate Change Carbon Budget 6 data <u>The-Sixth-Carbon-Budget-Charts-and-data-in-the-report.xlsb</u> (live.com)

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- New electricity supplies need new transmission infrastructure and a potential
 2-3 times increase in peak demand vs current levels by 2050
- There will also be a **decline in gas use** of 40-60% by 2035

These are the biggest changes since privatisation, when the broad form of our regulatory approach was set up.

- Delivering a low-cost transition will require strategically planned upgrades.
- The Future System Operator will have a role, potentially also regionally.
- Digitalisation opens up opportunities, including for new forms of regulation.

How can we set up our regulation to enable the low cost and optimised, resilient energy system of the future?

- How can we enable transformation, rather than incrementalism?
- How can we ensure consumer benefits are delivered?



Our regulation should:

- Ensure consumers get a fair deal now and in the future.
- Account for networks' critical role in delivering an efficient, resilient, and interconnected energy system.
- Enable the rapid pace and extent of change and investment needed to deliver net zero.
- Ensure digitalisation delivers all its potential for wider system benefits.
- Ensure continued investor confidence through focus on the financeability of networks, which is a key enabler of a low-cost transition.



A simplified framework for discussion of high-level choices:

Plan and Deliver (Archetype 1)	 New strategic planning processes define the need. Competitive tendering or other forms of efficient procurement ensure that customers benefit from low costs.
Ex ante Incentive Regulation (Archetype 2)	 Allows for some incremental evolutions from RIIO-style regulation and will feel the most familiar. Consider options for simplification.
Freedom and Accountability (Archetype 3)	 Relies on monitoring to allow companies bounded freedom in their choices: network companies pass costs through where they can demonstrate ex post that their expenditure forms part of an agreed plan to achieve net zero objectives at low cost.

These alternatives may be more relevant beyond RIIO-2, because of the changed landscape presented both by institutional changes (namely the FSO), and opportunities from digitalisation.



- The archetypes are neither new nor not mutually exclusive.
- A price control is composed of many building blocks and each building block belongs to a regulatory archetype. An overall regulatory model (eg RIIO) is made up of building blocks, and therefore reflects a particular mix of archetypes.
- An example of elements from RIIO-ET2:

Notiona	Price control Ne	twork A	E	xample – RIIO-E1	2
Building block (from Archetype 1)	Building block (from Archetype 1)	Building block (from Archetype 2)	Re-openers linked to ESO planning	Totex cost assessment	Financial framework
Building block (from Archetype 1)	Building block (from Archetype 2)	Building block (from Archetype 3)	LOTI/ASTI cost assessment	Outputs based on business planning	Close-out, use it or lose It re-openers
As-needed reviews	Annual reviews	Periodic reviews	As-needed reviews	Peri revi	odic ews



- We start by assuming that ET can be separated into activities: Business as Usual (BAU)/Replacement, Reinforcement and New Build.
- In this model, replacement and BAU activities would be regulated using mechanisms from Archetype 2.
- Substantial new build would be delivered under Archetype 1 in this model

	1. Plan	2. Design	3. Procure & Build	4. Maintain	5. Review
Replacement/ BAU Archetype 2	Licensee Ofgem	Licensee Ofgem	Licensee	Licensee	FSO Ofgem
Reinforcement Archetype 1/2	FSO Licensee Ofgem	FSO Ofgem Licensee	Licensee (ex-ante allowance or open book) <i>OR</i> Competition	Licensee	FSO Ofgem
New Build Archetype 1	FSO	FSO Ofgem	Competition <i>OR</i> Licensee (open book)	Licensee <i>OR</i> Competition	FSO Ofgem

NB: organisations are listed within each box in order of responsibility in that area of this model



- In ED, transformation for net zero is likely to soon become as far reaching at that seen in ET, with significant network upgrades, and local decisions supported by whole system optimisation. The Regional Planning model is still in its early stages, so it is unclear whether Archetype 1 can be applied here as it could for ET.
- In a transforming system, it will be critical to understand the growing electricity needs at a granular local level on a whole system basis and to maximise the opportunities for system optimisation.
- Need to allow the model to evolve to support innovation and use of temporally sensitive and locational data.
- Some of these options for change will require a long lead-time to implement, we wish to indicate emerging thoughts on the appropriate future regulatory framework.



- As with ET, we propose a split into distinct activities.
- Some 90% of GD2/GT2 spending expected to be on Replacement/BAU activities.
- This percentage is expected to reduce in the future, as more decommissioning and/or repurposing occurs in the longerterm; the timing and magnitude of this remains unclear.

	1. Plan	2. Design	3. Procure & Deliver	4. Maintain	5. Review
Replacement/ BAU Archetype 2	Licensee Ofgem HSE	Licensee Ofgem	Licensee	Licensee	FSO Ofgem
Decommission ing/ Repurposing Archetype 1	FSO RSP	FSO Ofgem Licensee	Licensee (Open book OR cost discovery) OR Competition	Licensee.	FSO Ofgem
New Build Archetype 1	FSO RSP	FSO Ofgem	Competition OR Licensee (Open book)	Competition Licensee	Licensee FSO Ofgem

NB: organisations are listed within each box in order of responsibility in that area of this model



- We will assess the proposed options against a counterfactual of maintaining the RIIO-2 approach, assuming incremental change.
- We propose to undertake an impact assessment, based on Ofgem's consumer interest framework (see below) for assessing our key decisions and the trade-offs involved.
- We will have regard to the benefits of incremental and more significant change and the impact this has on uncertainty, given our objective of attracting investment at low cost





• Questions?

Contact the team: FutureNetworkRegulation@Ofgem.gov.uk



Workstream 1: Strategic planning



Dzhordzhio Naldzhiev





Strategic Planning: enablers & delivery options

RIIO represents a **combination of 'pure forms' of regulatory archetypes** where investment needs are decided at a periodic price control review process effectively negotiated between the licensees and regulators.

The **difference** between <u>ASTI</u> and Archetype 1 thus resides in who specifies the **need across sectors**, and **how** is cost-control achieved.

Notiona	Price control Ne	twork A	E	xample – RIIO-ET	2
Building block (from Archetype 1)	Building block (from Archetype 1)	Building block (from Archetype 2)	Re-openers linked to ESO planning	Totex cost assessment	Financial framework
Building block (from Archetype 1)	Building block (from Archetype 2)	Building block (from Archetype 3)	LOTI/ASTI cost assessment	Outputs based on business planning	Close-out, use it or lose It re-openers
As-needed reviews	Annual reviews	Periodic reviews	As-needed reviews	Perio	odic

Figure 4. Archetypes and their application in building regulatory building blocks

Archetype 1: 'Plan and Deliver'

In this section we discuss the 'Plan and Deliver' approach to the regulation of network companies. Under this model, the need for investment and the outcomes from that investment are not identified by the network companies. Instead, the process by which investment is procured in a way that both meets customer needs and reflects efficient delivery is as follows:

- The external system planner determines a **need** for specific activities on the network (new investments, upgrades, etc);
- The planner then identifies the most efficient **delivery** model for that activity and defines outputs or outcomes that represent successful delivery; and
- Ofgem's role will include the decision on process to ensure delivery at efficient cost, using commercial market mechanisms (where appropriate), rather than upfront cost assessment, and **monitoring** of effective delivery against outputs.

Scope

- To evaluate the **scope**, and **capability**, of national and regional strategic plans within the context of future price control models.
- To explore the **optimal delivery routes (competitive tendering, open book contracting and direct procurement from the licensees)** for investments falling under Archetype 1.

> WS3 (Financial Framework), WS4 (RIIO lessons learned), and WS5 (Smart Regulation)

Objectives

- Identify **types and sizes of investment** which are likely to result in specified whole system plans that can be used to support Ofgem's regulation and provide benefits for consumers
- Identify feasibility of establishing Archetype 1 for multi-vector investments within next price control period.
- Evaluate benefits and trade-offs between delivery options for investment falling under Archetype 1

Engagement plan

- All stakeholders are encouraged to make written submissions via the consultation email: <u>FutureNetworkRegulation@ofgem.gov.uk</u>
- If you would like to contribute evidence via a working group, that will be led by Joseph Slater, please make sure you have indicated this through the **engagement survey** below:
- <u>https://www.surveymonkey.co.uk/r/66K3QMY</u> [the link is also present on the <u>consultation</u> webpage]
- We aim to involve as many people as possible in our decision making. However if any of our activities and events are oversubscribed and we cannot involve you directly, we will keep you informed of the outcomes of those events.
- Written and verbal submissions will be treated equally in the consultation process

Workstream 2: Incentive regulation

Teresa Romano

- Explore possible adaptations to the design of the existing RIIO-2 regulatory framework to make a
 distinction between repeated activities and less predictable and one-off activities.
- Consider options for simplification of network regulation for those repeated activities.

 \Rightarrow Dependencies: WS4 (RIIO Lessons) and WS5 (Smart Regulation)

Objectives

- Understanding the practicalities of separating out costs according to different types of expenditure network companies incur (by sector), and whether this separation could permit different forms of regulatory framework treatment.
- Consider their relative strengths and weaknesses of different forms of potential separation to the
 oversight of ongoing activities (by sector) and provide a preliminary evaluation of the practical steps
 required to develop and deliver the approach.
- Identify **alternative forms of regulation** which might be feasible with accurate separation of repeated activities, and the benefits and costs of these alternatives.

Key Questions we are consulting on:

1. Can separable categories of expenditure for repeatable activities be defined that will allow for:

- a. an alternative, simpler ex ante regulatory framework (including cost assessment approach) to be applied for a separable group of costs and outputs?
- b. a simple ex post productivity-based incentive to be defined (either against an external benchmark and/or benchmarked against other network companies) as an alternative to 'ex ante' productivity targets?

2. Under what circumstances would these options be more or less effective than the current RIIO framework?

3. Are there activities where cost efficiency is hard to measure, and a pure ex post review might become more appropriate?

4. For these options, what level of monitoring would be required to ensure that customers are 'getting what they are paying for' from the level of investment in base activities?

Stakeholder engagement – Proposed Timeline

WS3: Maintaining a stable financial framework

Chris Connor

Scope

- If the balance of archetypes used needs to change, our financial framework may need to evolve.
- Through this change, Ofgem must continue to ensure that:
 - customer bills are no higher than required as we deliver net zero;
 - incentives remain aligned with desired outcomes; and
 - companies remain able to be financially resilient and investors retain confidence.

Objectives

- We are engaging with stakeholders so that we can better understand:
 - a) to what extent the financial risk and return framework needs to change to adapt to any new regulatory framework; and
 - b) how Ofgem should assess and manage financeability if future frameworks do not include fixed price-control review periods?

Current 'RIIO' approach	
Approach to rate of return	Approach to financeability
Single, market-derived cost of capital	Financeability assessment using 5-year periodic review

- This financial framework is established and *relatively* simple, gives visibility to companies and allows a stable financial framework for investors supporting a low cost of capital.
- However, the benefits of a single 'RIIO' type of price control with fixed periodic review may decline as the type or balance of investment in networks changes.

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Potential approach to risk and return	Potential approach to financeability
Single, market-derived cost of capital across different archetypes	Single period for financeability assessment
Targeted approach to rate of return (e.g. different approach for archetype 1)	Single period for financeability assessment
Targeted approach to rate of return (e.g. different approach for archetype 1)	Targeted financeability assessments over different periods

Consultation focus

- The final design of the financial framework will depend on the overall regulatory framework, and the specific mix of archetypes used.
- The costs and benefits are also key considerations in the case for change.

In this consultation:

- ✓ We are looking for input into what would have to change in the financial and financeability frameworks if we move away from the current single allowance and periodic reviews.
- **X** We are **not** looking for input on specific cost of capital metrics, the calculation methods for the CAPM, etc. This detail will be covered in later processes.

Potential questions

- 1) What financial framework changes will be needed to allow greater use of Archetype 1 and/or 3?
- 2) How and why will risks and costs of capital (if different between archetypes) change the overall return required by investors?
- 3) How could the financial framework under RIIO/archetype 2 be further simplified?
- 4) How should financeability be assessed and supported at companies undertaking significant activity under archetypes 1 and/or 3?
- 5) How can we ensure that any changes in the financial framework are in the best overall interest of consumers?

Engagement plan

- All stakeholders are encouraged to make written submissions via the consultation email: <u>FutureNetworkRegulation@ofgem.gov.uk</u>
- We will hold the first working group on these issues in mid-April.
- We will also reach out to relevant stakeholders to arrange hybrid small group or 1-2-1 sessions during April and May.
- If you would like to contribute via one of these hybrid sessions, please make sure you have indicated this through the engagement survey link.
- Written and verbal submissions will be treated equally in the consultation process.

Workstream 4: Designing the process for price review -RIIO lessons

- Identify different **options for the role of consumers** in future price controls.
- Identify risks and benefits from periodic reviews across the range of activities and associated uncertainties.

RIIO-2 process lessons

RIIO represents a combination of approaches within a **single 'package' of licence modifications based on a single business plan for a fixed period** decided at a periodic price control review.

We are seeking views from stakeholders on **the effectiveness of key elements of the RIIO-2 process** to assess the degree to which **an evolution of RIIO-2 could meet future challenges**.

This process will inform our **assessment of the benefits and costs of moving away from the fixed period approach** followed in RIIO. We will seek input on the lessons we can learn from the RIIO-2 process, and what the **future opportunities for change** might look like.

Key areas for stakeholder engagement:

- The business planning process; including governance and timelines.
- The price control review process; including cost assessment, outputs, and incentives.
- The approach to ongoing network performance monitoring; particularly for GD/GT and ET, as well as factoring in early observations from ED2.

Outputs & incentives Role of the consumer voice For RIIO-2, an outputs framework made up of three For RIIO-2 we established enhanced engagement **arrangements** to give a stronger voice to network users, components: **Licence Obligations (LOs)** set minimum standards that consumers and consumer advocates in the price control network companies must achieve process. Price Control Deliverables (PCDs) specify the deliverable for the funding allocated, and the mechanism to As part of our review of the effectiveness of the RIIO-2 refund consumers in the event an output is not delivered process, we plan to discuss: The role of the consumer voice at different stages of (or not delivered to a specified standard) Output Delivery Incentives (ODIs) drive service the price control review process, and improvement through reputational and financial The implications for future network regulation, including incentives. the future opportunity for different forms of We also used **Business Plan Incentives (BPI's)** to **consumer engagement** in particular areas of the price encourage DNOs to submit high calibre business plans control. containing the information required to undertake a robust assessment. **Key questions:**

Kev auestions:

- Does this framework deliver the objectives that we need them to?
- How important are the business plans in identifying and shaping outputs and incentives?
- How do we gain quality information and ambitious cost • forecasts from the network companies?

- What changes may be needed to the role of consumer engagement during the price control review?
- Could potential changes to the regulatory frameworks • represent an opportunity for different forms of consumer engagement in particular areas of the price control?

Stakeholder engagement – Proposed Timeline

WS5: Digitalisation

Dzhordzhio Naldzhiev

- How digitalisation can unlock a different combination of Archetypes
- Understand potential for increased digitalisation, up to digital twin, to enable smart risk-based regulation when combined with enhanced monitoring

Dependencies: WS2 (Alternative approaches), WS3 (Financial Framework) and WS4 (RIIO lessons learned)

Objectives

- 1. To evaluate the **extent to which a more sophisticated location-specific, temporally-sensitive, and cross-vector modelling approach is feasible** and can be developed within the context of **digitalisation** of network assets.
- What is the development pathway for unlocking digitalisation and utilising smart or risk-based regulations; including in specific areas such as flexibility, planning and coordination in network regulation (generally) and asset management (specifically); and
- 3. How Ofgem should assess and best utilise the potential of an almost **real-time monitoring** in network regulation

Digitalisation landscape

- Digitalisation is not just about data generation, quality and accessibility but the process utilising it in a coherent way across the industry
- Companies, across the energy sector, are at different stage of their journey to increased digitalisation
- Investments in RIIO-2 aim to create a single reference point from which data could be viewed, interrogated and errors could be reduced
- Existing initiatives have started driving forward digital twin development, however an open question is whether the existing models are sufficiently mature to allow smarter regulation for better consumer outcomes

Key questions:

- 1. What regulatory framework could support network companies in moving towards increased digitalisation beyond RIIO-2?
- 2. When and how could we feasibly get a digital system that can monitor real time network conditions and automate future needs at all levels, timescales, and vectors?

[Interlink with WS1, but focusing specifically on digital element – data accessibility, data quality, data sharing]

Key questions:

- What digital tools, up to and including a digital twin, can we deploy to close the loop between planning and monitoring – what is needed, and what is feasible by when?
- 2. How could a digital twin be utilised to assess the optimal national, and regional, balance between flex and network investment requirements?
- 3. Could a digital twin model be combined with Archetype 3 regulatory approach to provide a more flexible approach to network regulation, and if so for which activities and by when

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- Final Questions
- Observations
- Next Steps

- <u>EasyRetro</u> open until 1400 today for comments
- <u>SurveyMonkey</u> open until this Friday, 31 March for registering interest in workstreams

Contact the team: FutureNetworkRegulation@Ofgem.gov.uk