

RIIO-ET Policy Working Group 3



28/09/2018

SO:TO interface



This presentation is by National Grid electricity transmission i.e. **the transmission owner for England and Wales.**

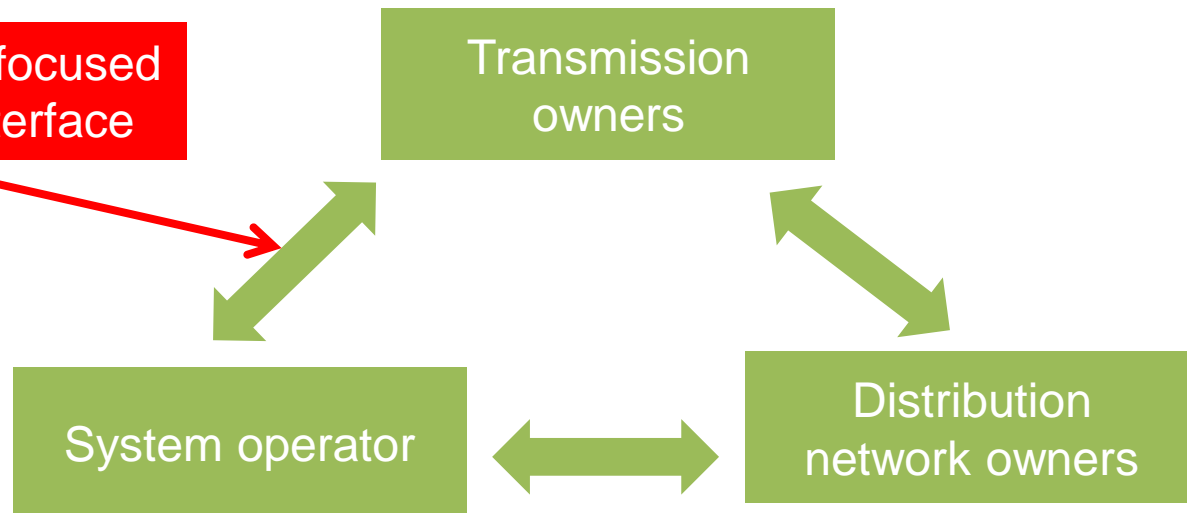
Jon Ashley

28 September 2018

Whole systems

Some of the main benefits from whole system approaches apply at the interfaces between different parts of the energy sector, where different organisations can optimise across the interfaces.

This slide pack is focused on the SO:TO interface



Constraint costs

A constraint (or congestion) occurs when the capacity of transmission assets is exceeded so that not all of the required generation can be transmitted to other parts of the network, or an area of demand cannot be supplied with all of the required generation.

Constraint (or congestion) costs occur when the SO has to adjust the dispatch position of generators because of network constraints in order to maintain a security standard on the network i.e. replace cheaper with more expensive sources of generation.

The average constraint cost for system access across Great Britain is **£250m to £300m per year**. The SO is expecting these constraint costs to rise slightly, other things being equal, as NGET connects more interconnectors into the south coast.

Unlocking value for consumers

Following legal separation the SO will have different incentives from the TOs.

- The SO will be incentivised to minimise balancing costs.
- The TOs will be incentivised to minimise the costs of delivering their network outputs.

However, these incentives are unlikely to lead to minimised whole system costs because they can work in opposition.

For example, the SO prefers short emergency return-to-service times for network interventions to reduce balancing costs, but TOs prefer longer emergency return-to-service times to reduce their costs of network maintenance.

For T2 there could be an opportunity to build on the T1 work on the Network Access Policy (NAP) to unlock value for consumers from optimising whole system costs across the SO and TO.

Whole System update



Zak Rich

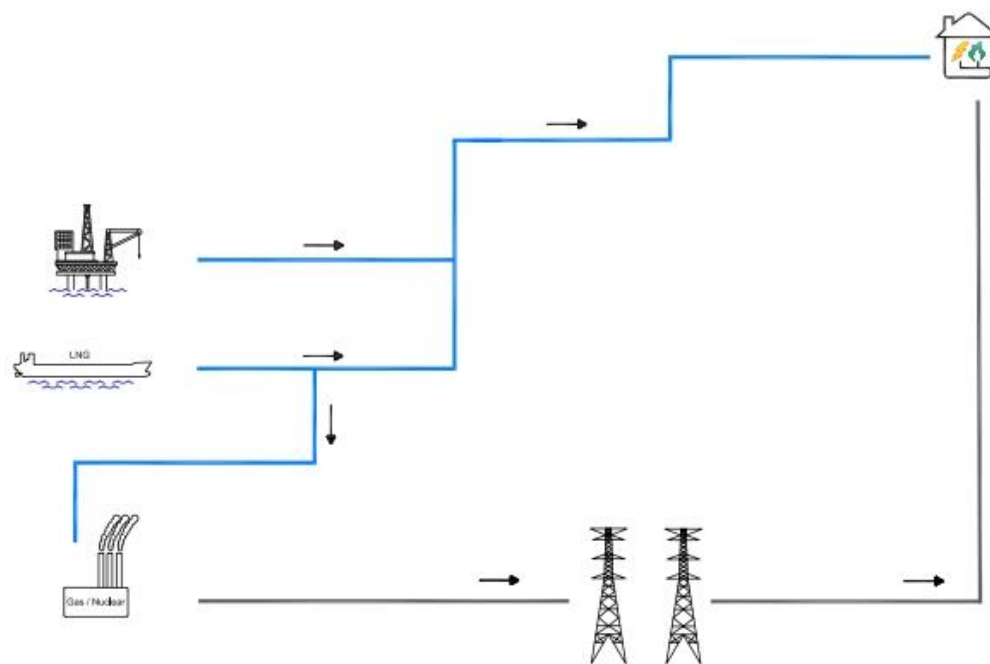
Introduction

RIIO-2 design principles (draft)

Outcomes from meeting

Questions for the Working Group

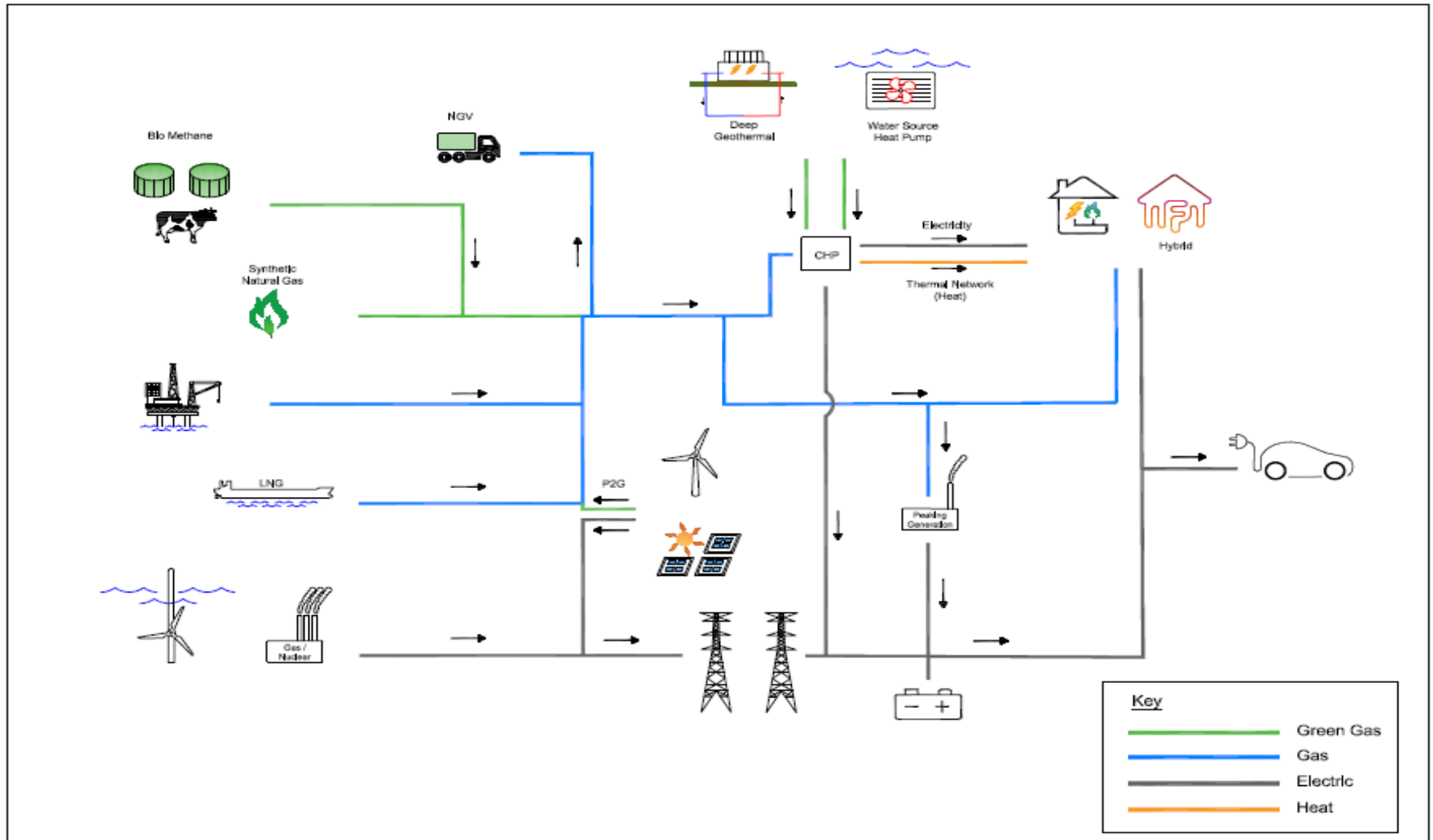
For 120 years – simple system, little or no interaction



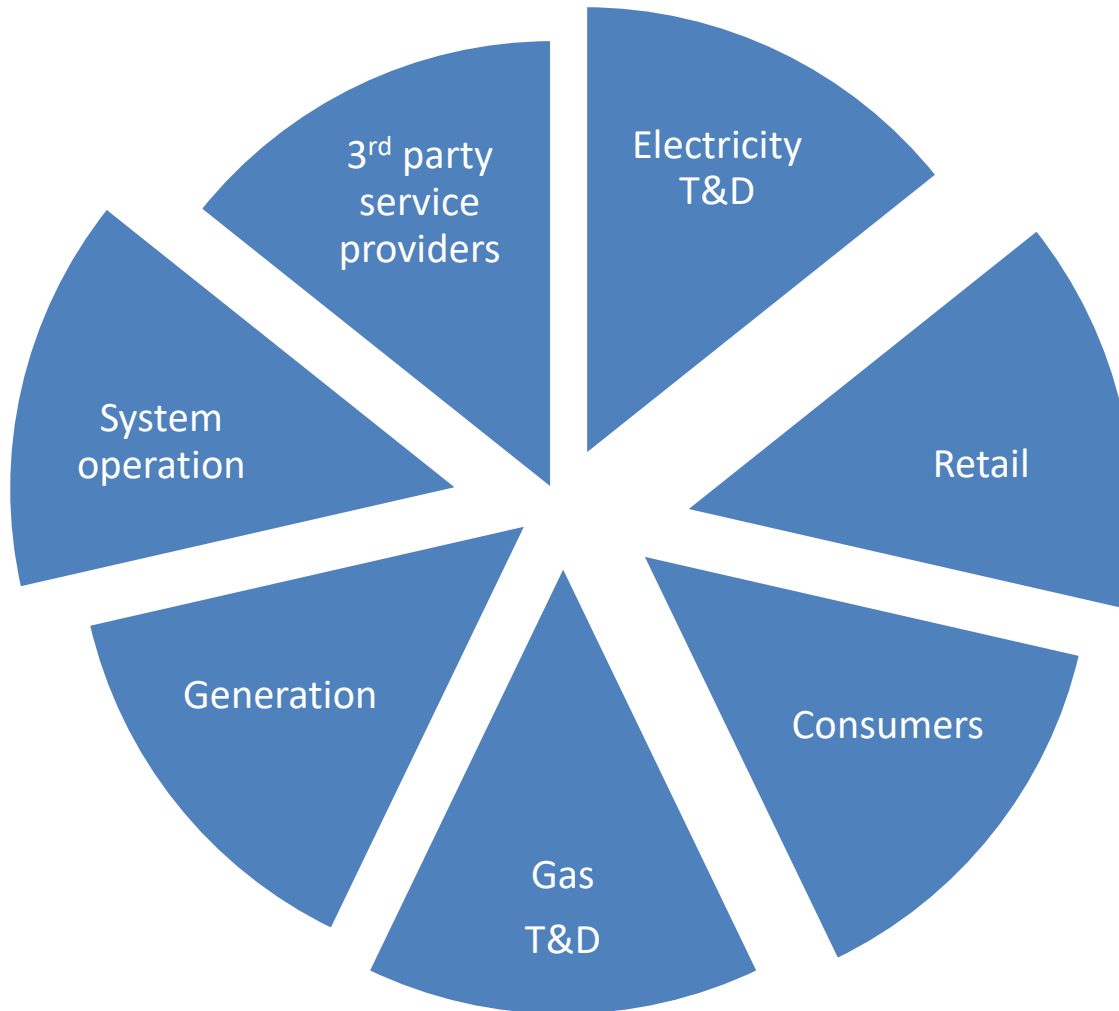
Key

- Gas
- Electricity

Supply and demand constantly changing with time of day, season, weather.



Theory behind whole system focus



Questions we sought to explore

- what is preventing WS benefits from being captured?
- what are the enablers, best placed in the price control, which would lead to more Whole System benefits?
- how would different definitions change the desired behaviour and enablers?

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Design principles:

Develop RIIO-2 Whole System design principles

- Achieve greater net-beneficial whole system outcomes through the price control
- Set direction for RIIO-2 and future price controls
- Maximise consumer benefit, not whole system outcomes, while meeting regulatory stances

Sectoral application:

Shaping network behaviour through shared and sector-specific incentives and obligations

- Providing clarity to companies on what is expected of them
- **Potential reputational/discretionary incentives in RIIO-2** for more ambitious behaviour where exact **output unknown**
- **Obligations** (eg to coordinate) and potential incentives

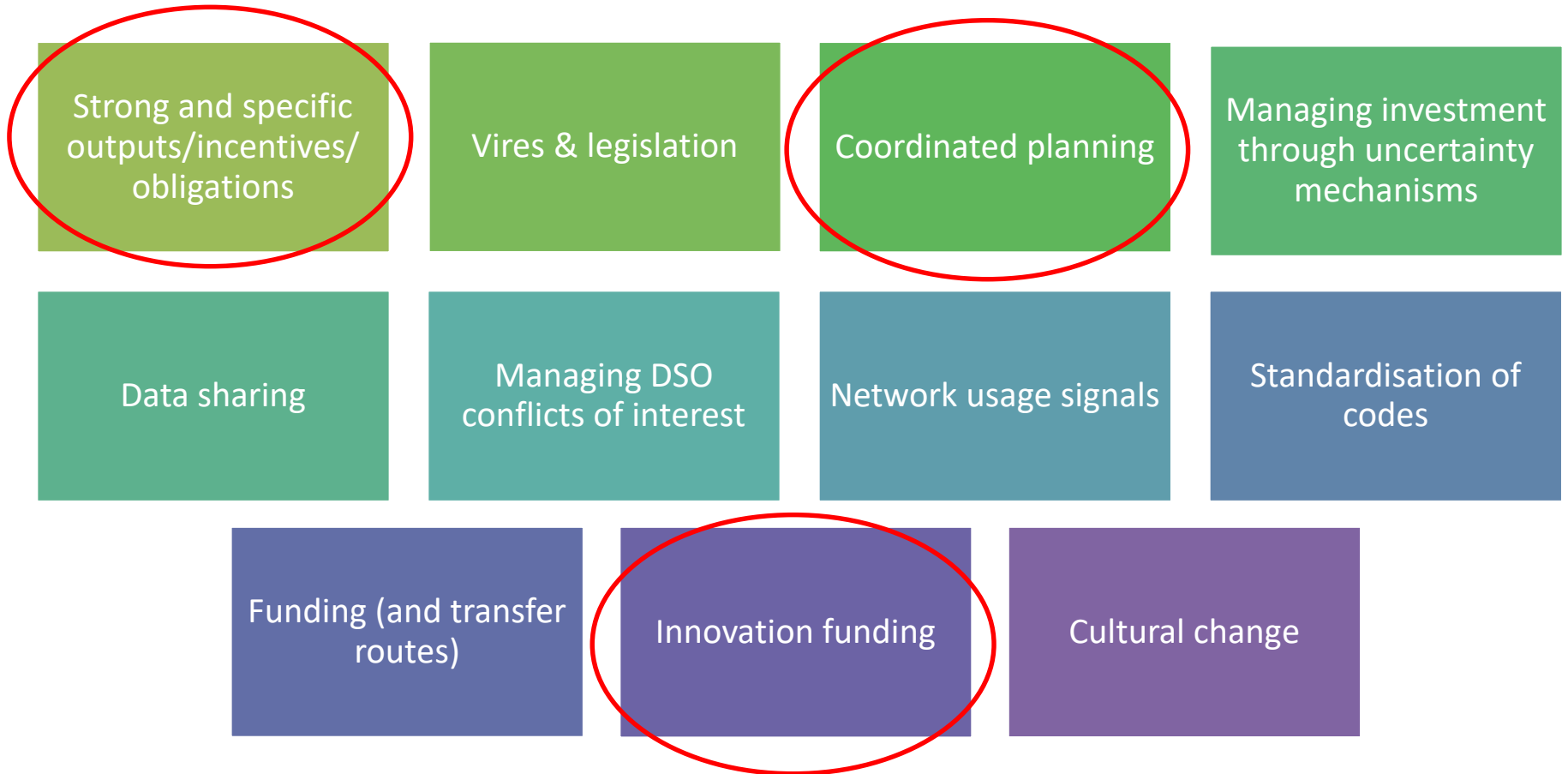
Scope:

Develop ambitious scope in the context of whole systems vision

- Broader scope signposts longer term vision
- Ambitious – deliberately wide and non-exclusionary
- Sets frame for incentivising greater whole system ambitions in business plan proposals (RIIO-2)

- *We will adopt an approach that enables Ofgem to appropriately facilitate whole system outcomes to deliver **best value for consumers***
- *We will seek to avoid inefficient **cross-subsidy** between sectors and vectors*
- *We will seek to minimise the inefficient participation of networks in **competitive markets**, and appropriately manage any conflicts*
- *We will use the most **appropriate instrument** to address whole system benefits, and will ensure the price control is not a **barrier** to whole system transition and policy*
- *We will ensure that whole system interventions are **proportionate** to their potential benefits*

Of some the potential areas to focus our attention, we are closely considering the following:



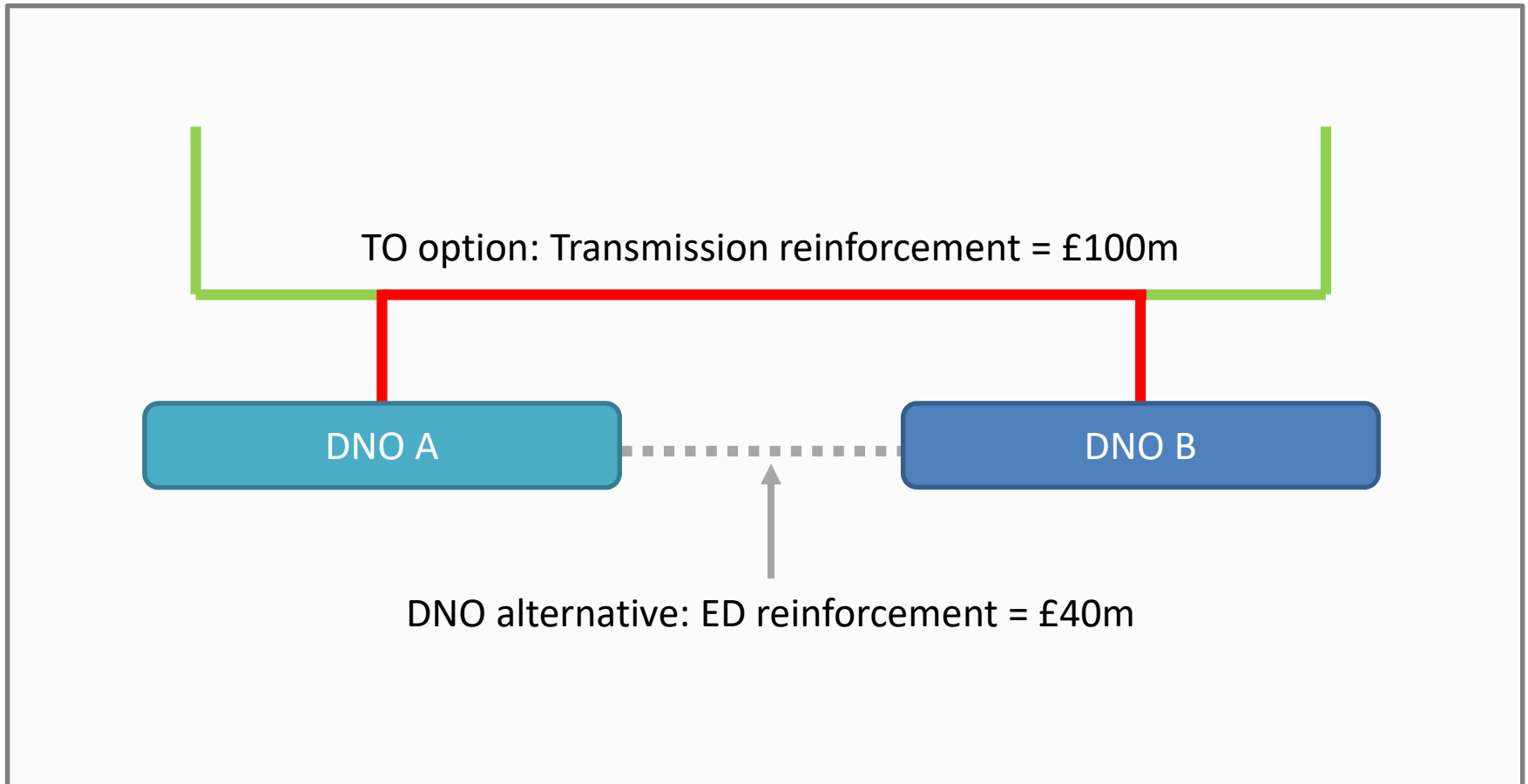
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Stylised example of WS activity: no clear route for cooperation



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1. what is preventing WS benefits from being captured?
2. what are the enablers, best placed in the price control, which would lead to more Whole System benefits?
3. how would different definitions change the desired behaviour and enablers?

1. what is preventing WS benefits from being captured?

- Need specific examples of both cross-sector and cross-vector
- Consider both pre-price control period (eg business planning) and within price control period

2. what are the enablers, best placed in the price control, which would lead to more Whole System benefits?

There are many levers which could possibly enhance whole system outcomes.

- Of these potential enablers, which can:
 - **only be addressed by**, or are
 - **best addressed by**

the price control?

*This is particularly relevant given the Authority's focus on **simplifying** the price control.*

2. what are the enablers, best placed in the price control, which would lead to more Whole System benefits?

In addressing this:

- *Be specific on operation and process*
- *If additional price control funds, how will consumer benefits be evidenced to justify*

3. how would different definitions change the desired behaviour and enablers?

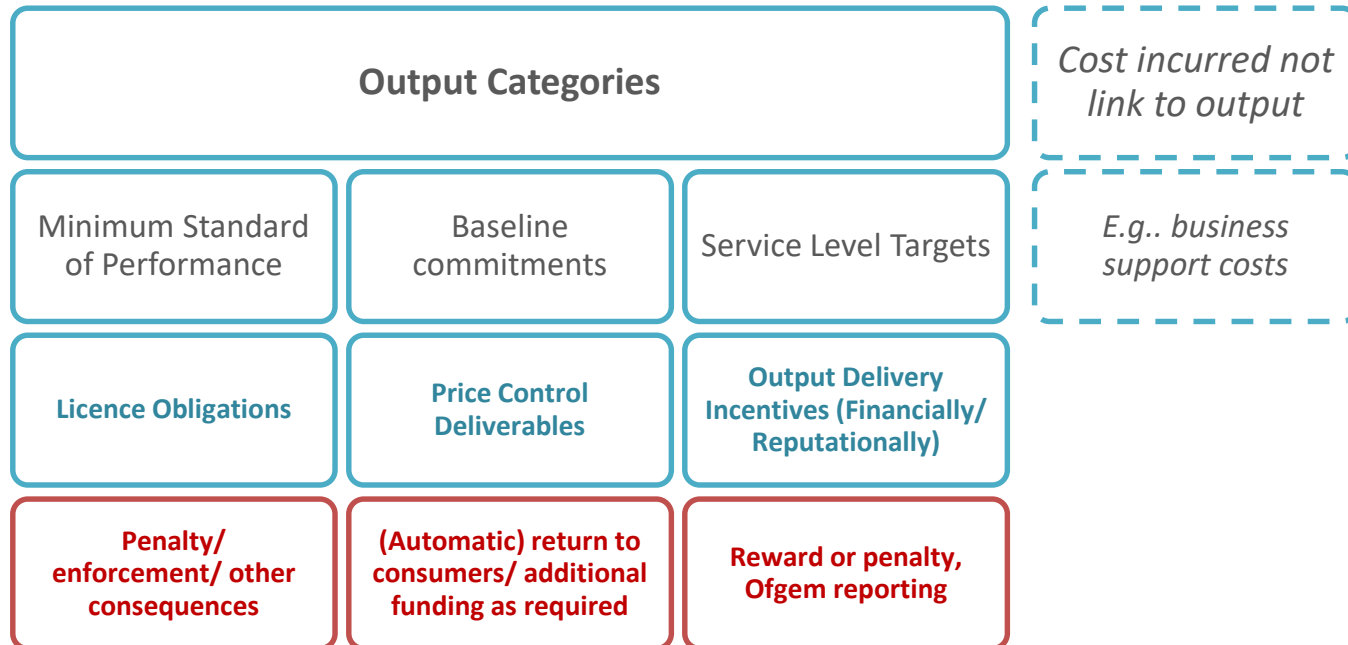
Outputs and incentive framework: ODIs, PCDs and licence conditions



Keren Maschler

- For RIIO-2 we are proposing to bring additional clarity to the framework in terms of: (i) introducing a common understanding of outputs to be delivered, (ii) ensuring the price control contract is as complete as possible, and (iii) clarifying consequences where outputs are not delivered.
- We have set out the following three “types” of outputs:

Price control settlement



| Type | RIIO-1 Example | Description – recap on RIIO-1 |
|------|--|--|
| PCD | Baseline and Strategic Wider Works | <ul style="list-style-type: none"> • Large one-off projects funded through baseline settlement and within period determinations. • Conditions (e.g. timings, detailed specifications) attached to delivery. • Clear mechanism in place to deal with changes in circumstance/ failure to deliver. |
| PCD | GW/ MW of connections or MVa capacity (Volume driver) | <ul style="list-style-type: none"> • Baseline funding in settlement based on target GW/ MW connections or target MVa capacity – <u>target can be 0</u> to start with. • Funding flexes up or down based on amount of MW actually connecting/ actual capacity required. |
| PCD | Asset replacement (NOMs) | <ul style="list-style-type: none"> • Baseline funding in settlement based on lead asset replacement target. • Final funding potentially updated at the end of the RIIO1 to align with NOMs methodology. |
| PCD | Existing infrastructure mitigation projects for visual amenity | <ul style="list-style-type: none"> • Funding for eligible project (restricted by total available sum). • Within period determination based on assessment of submission: compliance with scheme policy and efficient costs. • Funding provided associated with delivery of a particular project (deliverable). |
| ODI | Business Carbon Footprint | <ul style="list-style-type: none"> • Reputational only. • Includes various inputs such as SF6 (incentive) and losses (not incentivized). • Only partially controlled by TOs. |
| ODI | SF6 Emissions (Environment) | <ul style="list-style-type: none"> • Reward/Penalty set to reflect carbon price. • Company specific target – asset based (absolute) |
| ODI | Environmental Discretionary Reward (EDR) | <ul style="list-style-type: none"> • Discretionary reward of up to £6m awarded each year to the TOs, based on company performance against a number of specified criteria. • Assessment carried out by a panel of experts. |
| LC | Standard licence condition 3D | <ul style="list-style-type: none"> • SQSS – “the licensee shall at all times plan and develop the licensee’s transmission system in accordance with the National Electricity Transmission System Security and Quality of Supply Standard”. BP, PCD will be based on this licence condition. It also interacts with ENS – defines basic standards for reliability. |
| LC | Standard Condition B19 (NGET): Connect and manage implementation | <ul style="list-style-type: none"> • “The licensee shall take such stepsto give full and timely effect to ...CUSC, STC, (connection use of system code and system operator transmission code respectively) and the licence itself”. This is de-facto another layer of regulation related to connections. |

RIIO-2 Costs & Outputs Working Group

Electricity Transmission



Paul O'Donovan
Head of Electricity Transmission
Cost Assessment

- **Inform ETO business plan submissions**
 - ✓ **Content**
 - ✓ **Form**
 - ✓ **Evidential base required**
- **Inform development of analytical techniques for assessment of business plan**
- **Forum for working out the practical implementation of performance monitoring through course of RII0-ET2**

- **Review RII0-ET1 cost analysis work program**
 - ✓ **Determine what is still suitable, what needs to be changed**
- **Develop and refine assessment methods for**
 - ✓ **Totex**
 - ✓ **Capex**
 - ✓ **Opex**
- **Establish the approach to and treatment of:**
 - ✓ **Business support costs**
 - ✓ **Contractor modelling**
 - ✓ **Whole life costs**
 - ✓ **Innovative solutions**
 - ✓ **Investment avoidance**
 - ✓ **Associated investment costs**
- **Cross Sector WG to discuss specific common areas**

Review of RII01 mechanisms, direction for RII02

What's worked well, what can be improved

Framework decision – implications for workgroup

Cost Benefit Analysis

Benchmarking approaches

Data templates

Business plan submission

RII02 monitoring

**All high level principles to date, detailed analysis to start at
October meeting**

Introduction to Safety and NAP (TOs)



Dale Winch

Safety

- The requirement is for the TOs to comply with their legal safety requirements.
- These are regulated by the Health & Safety Executive (HSE).
- Statutory requirements. No financial incentive.
- Additionally this links closely to the Network Output Measures (NOMs) requirements for:
 - criticality
 - replacement priorities (or risk)
 - system unavailability
 - average circuit unreliability (ACU)
 - faults and failures
- These measures inform both the safety and reliability of the network.
- Wider work on resilience across the energy system is being led by the Whole Systems Team. This will focus on cyber security, asset and work force resilience



Network Access Policy (NAP)

- Established in April 2013, and applies until the end of March 2021.
- Currently two NAPs – One for Scotland and one for England & Wales.
- The NAP is designed to sit alongside the other existing outputs under RIIO.
- Aims to ensure improved coordination, cooperation and communication between TOs and SO on system availability and managing both planned and unplanned network outages.
- Additionally any considerations made are done with due consideration of the long-term outcomes for consumers and network users
- The expectation that each plan is updated every 2 years.
- The requirement is set out within Licence Condition Section 2J.



The Network Access Policy for England and Wales applies to National Grid Electricity Transmission's electricity transmission licence.

The Network Access Policy for Scotland, applies to both SP Transmission and Scottish Hydro Electric Transmission plc.



- Do you think the NAP process has driven positive behavioural change?
- Can more be done to promote wider co-operation on system-side issues through NAP?
- How does this fit in with wider discussions around Whole Systems?
- Is the expectation that each plan is updated every 2 years, still appropriate?

RIIO-T2 Availability (NAP) Incentive

Agenda

- **Background**
- **Review of Incentive in RIIO-T1**
- **Discussion on Development for T2**

Network Access Policy

RIIO T1

Scottish Hydro Electric Transmission Plc
Scottish Power Transmission Ltd

Background : RIIO-T1 Output Incentive Mechanisms

- i. Reliability – Energy Not Supplied (ENS)
- ii. Environmental Discretionary Reward (EDR)
- iii. Sf6 Leakage
- iv. Stakeholder Satisfaction Output –
 - a. customer satisfaction and
 - b. stakeholder engagement
- v. Timely Connections

- vi. Availability – Network Access Policy (NAP)
- vii. Safety
- viii. System Losses
- ix. Business Carbon Footprint
- x. Visual Amenity - £500m shared funding pot



Availability – Network Access Policy (NAP)

Network Access Policy

RIIO T1

Scottish Hydro Electric Transmission Plc
Scottish Power Transmission Ltd

Special Condition 2J. Network Access Policy

2J.1 The purpose of this condition is to set out the requirements upon the licensee to publish, no later than 30 days after 1 April 2013, and from then on to act consistently with a Network Access Policy (“the NAP”) designed to facilitate efficient performance and effective liaison between the System Operator and Transmission Owners in relation to the planning, management, and operation of the National Electricity Transmission System (NETS) for the benefit of consumers.

https://www.scottishpower.com/userfiles/document_library/TransmissionNetworkAccessPolicy.pdf

<https://www.ssepd.co.uk/TransmissionPriceControlReview/>

<https://www.ofgem.gov.uk/publications-and-updates/authority-decision-approve-network-access-policy-nap>

To meet UK and Scottish government targets on renewable energy, maintain the Transmission Network and replace ageing infrastructure and assets, it is necessary to switch out parts of the Transmission Network to carry out work safely. Switching out one or more assets for a period of time to permit work to be carried out on those assets is described as an *outage*.

Network Access Policy (NAP) – What it's NOT

Reform of electricity network access and forward-looking charges working paper

6th June 2017

IT'S NOT THIS TYPE OF NETWORK ACCESS

| | Access rights | Forward-looking charges |
|-----------------------------|--------------------------|---|
| | Time aspects | Types of costs |
| | Firmness | Types of charge |
| | Geographical nature | Basis of charge |
| | Associated conditions | Timing of payment and degree of user commitment |
| Allocation and reallocation | Initial allocation | Locational granularity |
| | Reallocation and trading | Types of locational signal |
| | | Temporal granularity |

Network Access Policy (NAP) – What it IS

Maintain System Security

- For this work to be done with the minimum impact on system security to consumers and users of the network, a process has been established that involves the SO and Scottish TOs working closely together, known as the Scottish TO Network Access Policy (NAP).

Consider Whole System Costs

- The NAP is developed in the context of consumer impact and incentive mechanisms introduced by OFGEM such as constraint costs, where generators of electricity are compensated by the SO for being unable to produce energy when circuits become unavailable for electricity transmission.

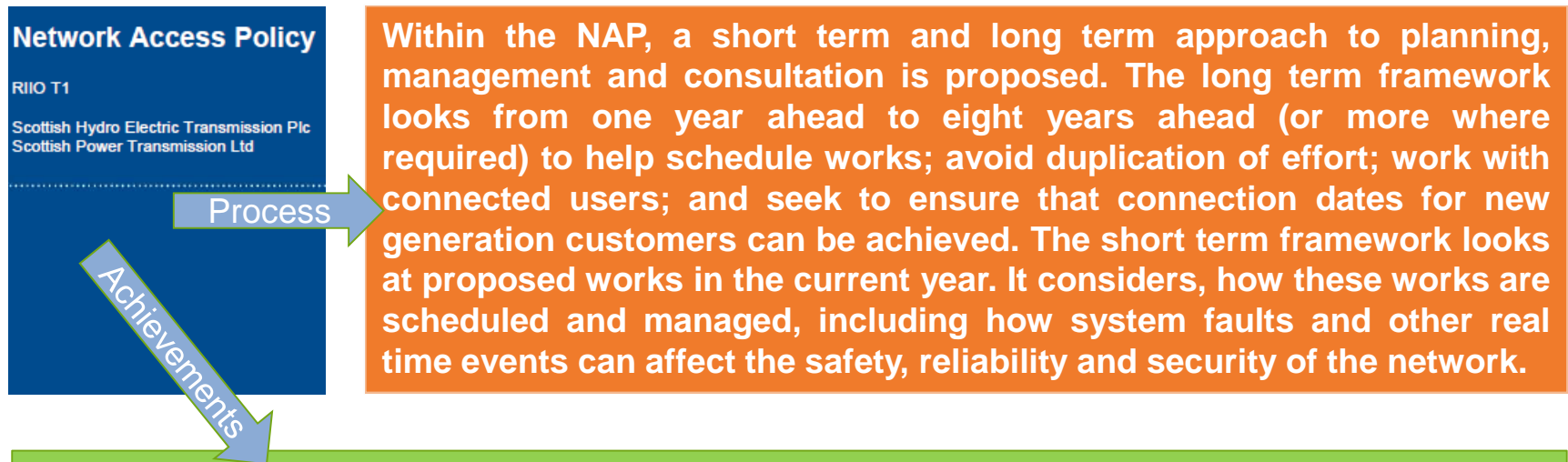
Increase Stakeholder Engagement

- Key to delivery of this process is a flexible approach taken by both the SO & TO in areas such as outage timing; working with other stakeholders such as generators; innovative solutions to network issues; and frequent and effective consultation with each other to ensure the optimal system and cost outcomes can be achieved.

Improve Capability & Delivery

- Due to the expected increase of investment and works by both SHE Transmission and SP Transmission, long term planning becomes more significant to ensure outages are coordinated effectively on the network and do not clash; that alternative means of energy supply can be identified; and all necessary contingencies can be prepared.

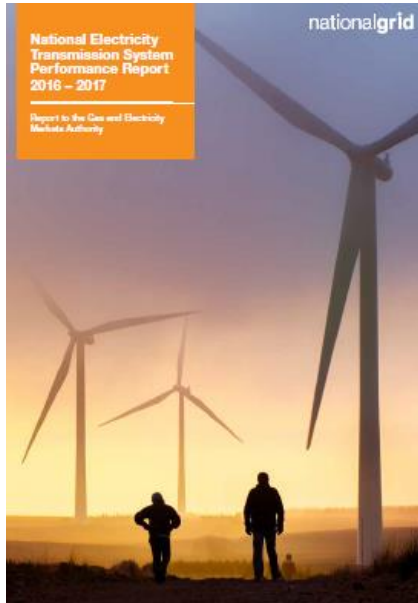
Network Access Policy (NAP) – What it's DONE



Within the NAP, a short term and long term approach to planning, management and consultation is proposed. The long term framework looks from one year ahead to eight years ahead (or more where required) to help schedule works; avoid duplication of effort; work with connected users; and seek to ensure that connection dates for new generation customers can be achieved. The short term framework looks at proposed works in the current year. It considers, how these works are scheduled and managed, including how system faults and other real time events can affect the safety, reliability and security of the network.

- Massive improvement in interaction, communication, behaviour and culture across TO and ESO planning teams
- Outage Planning Teams restructured and now organised around planning timescales.
- Process for security and economic justification utilising 'NAP Forms' for every outage change with significant impact.
- New SO – TO financial mechanism to link infrastructure solutions to save constraint costs and NGET licence special condition 4J (and STCP 11-4)
- "OC2" Forums biannual stakeholder events well attended and jointly delivered.

Network Access Policy (NAP) – What Could Be Improved for RIIO-T2?



In accordance with Standard Licence Condition C17 (Transmission System Security, Standard and Quality of Service) of its Transmission Licence, NGET, as NETSO, is required by the Gas and Electricity Markets Authority, to report National Electricity Transmission System performance in terms of availability, system security and the quality of service

Develop Quantitative measures?

- Adherence to year ahead plan? **But flexibility is important.**
- Achievement of completion dates of “on-com” outages? **But could it lead to longer outages?**
- Constraint costs saved through outage changes? **But difficult to confirm actual constraints saved.**
- Availability Measure? **Better availability could lead to less outages being taken but improve system reliability**

Improve Qualitative Measures?

- Consolidation of NGETO and Scottish TO NAP's
- Better reporting of Activity, KPI's and Improvement Initiatives
 - **Revision and Alignment with Annual System Performance (C17) Report**

<https://www.nationalgrid.com/sites/default/files/documents/National%20Electricity%20Transmission%20System%20Performance%20Report%202016-2017.pdf>

RIIO-T2 Safety Incentive



Agenda

- Review of Incentive in RIIO-T1
- Discussion on Development for T2



Review of Incentive in RIIO-T1

- The extent of the Safety incentive in RIIO-T1 is to comply with the legal safety obligations as set and monitored by the Health and Safety Executive (HSE) as the safety regulator.
- Safety is embedded as business as usual and recognised by our Directors and Delivery Managers as a primary responsibility. Safety is established as our number one priority so developing the safety incentive to improve performance is not required although increasing transparency of our performance could be beneficial.
- Evidence of progress and good practice in RIIO-T1 include the embedding of Safety observation monitoring and review, establishment of behavioural safety teams, legitimacy given to good housekeeping. Contractor safety requirements are embedded in procurement processes and therefore priced in by contractors. The safety management System (SMS) led by our SP Corporate team and embedded across all SP businesses across the Iberdrola group.



Development of Safety Incentive in RIIO-T2



- **A qualitative incentive could be an opportunity to better communicate our activities in these areas, over and above compliance, as a development of the existing incentive. For example, our public education, school education and agricultural events.**

- **Other initiatives such as contractor forums and workshop, OHL working group and Vehicle and Plan contractor forum could be highlighted.**

- **There is also learning from the ED1 Scheme that could be adopted. SPD identified 5 areas to report on which include metrics on compliance, operational integrity, substation security, public education and reducing LTA rates.**

- **Explicit quantitative measures for safety such as LTA's rates could be misleading and risks under reporting. Numeric targets on the number of events we deliver within a year are an option but don't measure the value of the event.**

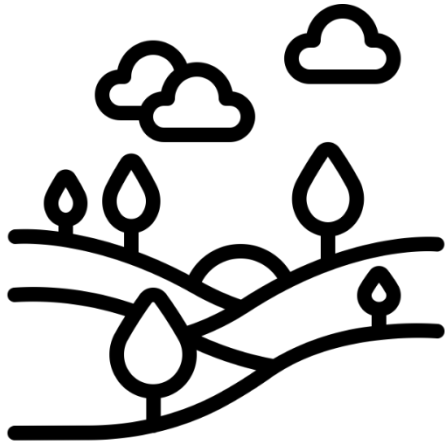
- **A better alternative might be to reflect the stakeholder engagement incentive and be scored by a panel based on what we've been doing to promote public safety.**

Mitigating visual amenity impacts of transmission infrastructure

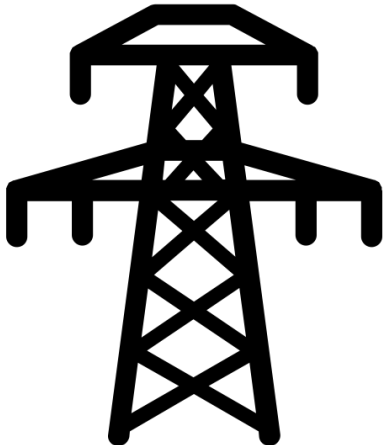


Anna Kulhavy

Visual amenity policies



1. New transmission projects: *"efficiently meet planning requirements"*
 - WG broadly felt policy stance in RII01 appropriate.
 - Arrangements enabled transmission owners to balance visual amenity considerations against obligation to be economic and efficient.
 - ? ***Can price control help improve engagement with local stakeholders on how visual & socio-economic impacts are taken into account in new projects?***

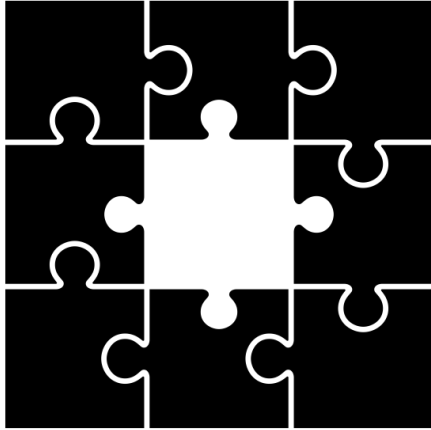


2. Existing infrastructure in designated areas: *"efficiently reduce impacts on visual amenity"*
 - General agreement to retain provision in RII02 subject to revisiting consumer willingness to pay (WTP).
 - ? ***Can scheme be extended to cover other areas eg world heritage sites or non-designated areas?***
 - ? ***Are there other more effective/efficient ways to operate scheme?***

| Policy area | Direction of travel |
|---------------------------|--|
| New transmission projects | <ul style="list-style-type: none"> Propose to retain highlevel policy stance as RIIO1. Want to drive stakeholder satisfaction improvements in TO communications on new transmission projects → looking at whether the stakeholder engagement survey can help in RIIO2. |
| Existing infrastructure | <ul style="list-style-type: none"> Need a new study on consumer WTP to underpin a RIIO2 provision for mitigation projects. Study should estimate both median and average WTP. Ofgem to engage with TOs taking forward further work in this area. |
| | <ul style="list-style-type: none"> We're not proposing to extend the scheme to other areas. We don't think there is a strong case to extend scheme to non-designated areas – unlikely projects have more merit than sections of OHL in highest amenity areas ie national parks, areas of outstanding natural beauty and national scenic areas. Absence of statutory obligation to extend scheme to other designated areas. Need further evidence about the adverse impacts transmission network on other designated areas. |
| | <ul style="list-style-type: none"> Consult on whether there are more effective ways to operate existing infrastructure scheme in RIIO2. See next slide. |

| | Option 1 | Option 2 |
|-----------------------------|---|--|
| Description | Status quo. | VA mitigation price control deliverables (PCD) |
| How will this work in RIIO2 | TO selects projects with stakeholder representatives, and submits funding requests for Ofgem decision <u>over the course of the price control.</u> | TO includes mitigation projects as part of its RIIO2 business plan submission. Ofgem decides on VA PCDs <u>ahead of price control period.</u> |
| Advantages | <ul style="list-style-type: none"> Proposal based on more information about project design and risks – greater cost certainty. Subject to detailed project specific assessment. | <ul style="list-style-type: none"> Pre-commitment on benefits TO will deliver for consumers and the costs of these. Costs are in context of wider business plan and will be subject to user group scrutiny. Allows more integrated business planning eg interactions with refurbishment/replacement. Wider stakeholder buy in / opportunity to input than status quo. TO has more discretion to plan / programme project works and is less dependent on regulatory process. |
| Disadvantages | <ul style="list-style-type: none"> Weaker incentives on TO to maximise benefits for consumer from allowance and to innovate. | <ul style="list-style-type: none"> Less information about project – greater uncertainty on costs → higher cost contingency. Potentially require change process to modify PCDs over course of price control as more information available. |

Is there an Option 3: a hybrid approach depending on project value and certainty?



- Do the TOs survey stakeholders on their engagement experience on new projects? What are feedback themes and how has this informed engagement practices?
- Any additional thoughts on how the existing infrastructure scheme should operate in RII02?
- Is there anything else that should be covered in the methodology consultation on visual amenity?

Our core purpose is to ensure that all consumers can get good value and service from the energy market. In support of this we favour market solutions where practical, incentive regulation for monopolies and an approach that seeks to enable innovation and beneficial change whilst protecting consumers.

We will ensure that Ofgem will operate as an efficient organisation, driven by skilled and empowered staff, that will act quickly, predictably and effectively in the consumer interest, based on independent and transparent insight into consumers' experiences and the operation of energy systems and markets.