

RIIO-ET Policy Working Group 2



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and James Tyrrell**

07/09/2018 (updated)

Intro and overview of RIIO-2 work



Clothilde Cantegreil/Keren Maschler

RIIO-2 cross section work streams: mapping exercise



- In our last working group, you asked about our work in the context of other RIIO-2 work streams.
- We carried out a “mapping exercise” to try and highlight the work being taken forward as a cross-sector exercise, or by other sectors (incl. timeline) and highlighted areas that we believe are most relevant to our work.
- Following today’s discussion, we hope to better understand your view of other potential interactions with the RIIO-2 work.

Timeline for activities and deliverables- key milestones

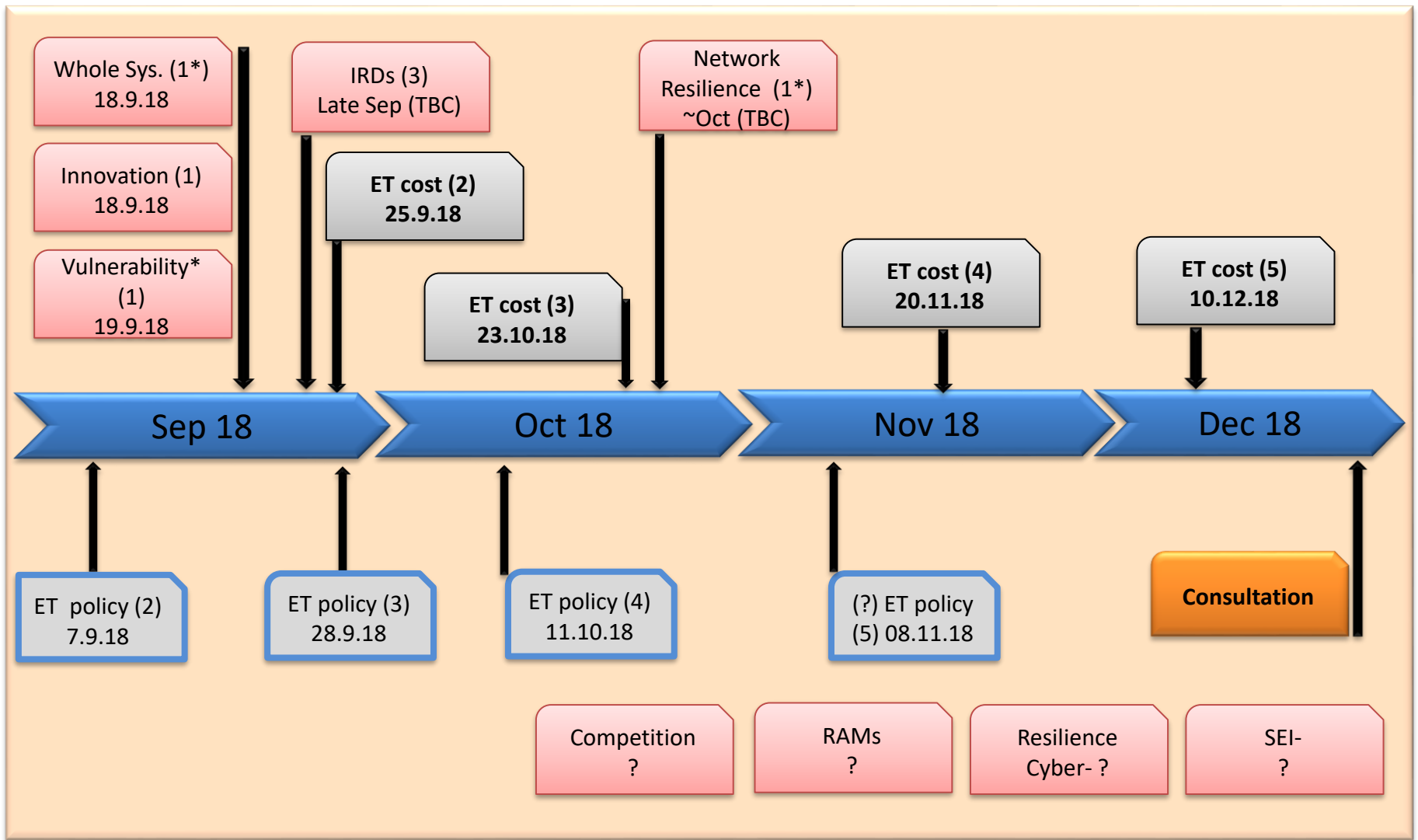
Table 1: Indicative high-level milestones for developing sectoral price controls for electricity transmission, gas transmission, gas distribution and electricity system operator

Indicative high-level milestones ET, GT, GD and ESO	
March 2018	RIIO-2 framework consultation
April 2018	RIIO-2 enhanced engagement guidance
July 2018	RIIO-2 framework decision
December 2018	Sector specific methodology consultation
May 2019	Sector specific methodology decision
Q4 2019 ⁴¹	Companies Business Plan formal submission to Ofgem (along with RIIO-2 CCG and user group reports on Business Plan to Ofgem)
Q1/2 2020	Open hearings
Q2 2020	Draft determination
November 2020	Final determination
December 2020	Statutory Licence consultation
February 2021	Licence decision
1 April 2021	Start of RIIO-2 price control for ET,GT,GD and ESO

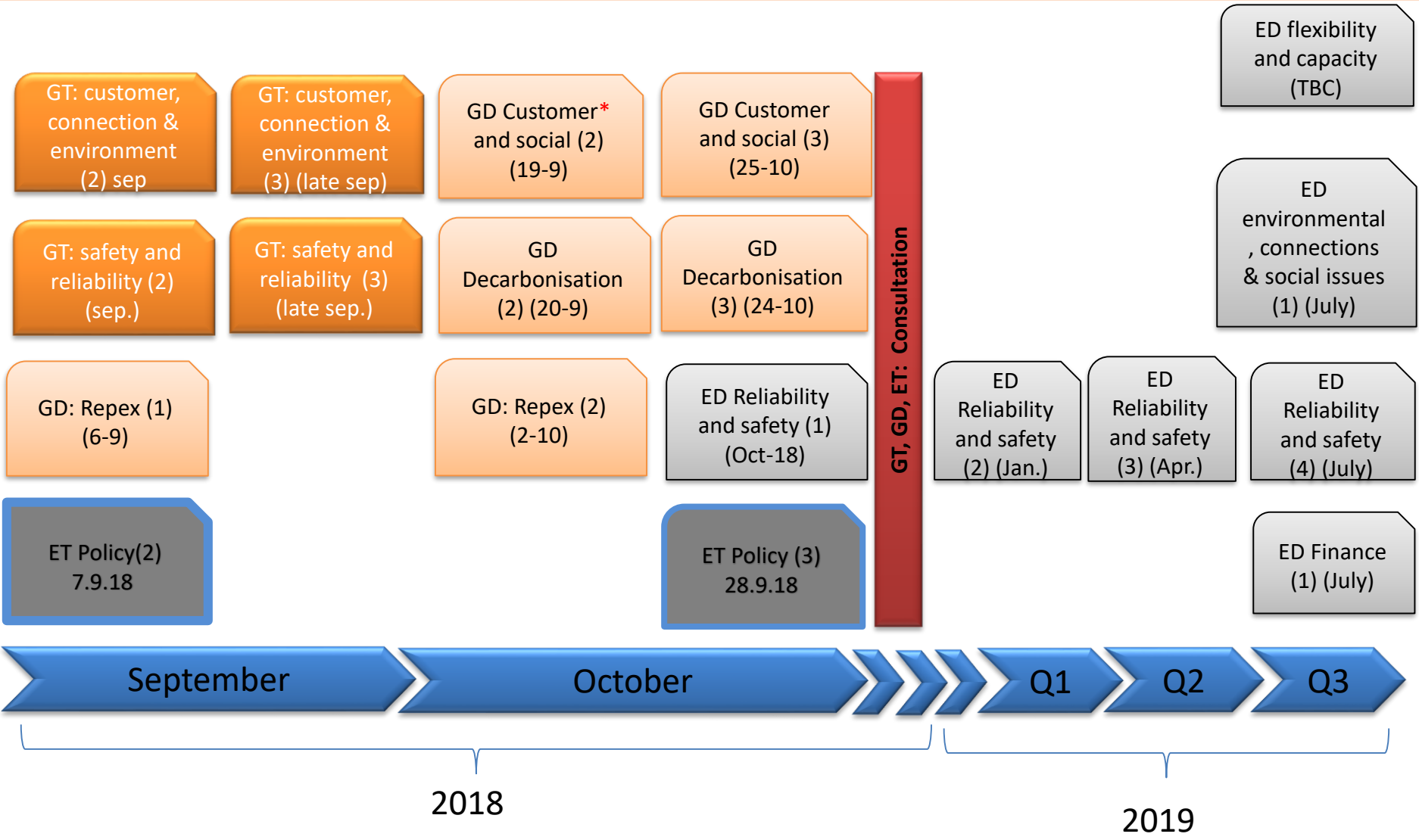
RIIO-2 cross sector policy development review : who, what, how

Who (lead)	What (Work stream)	How (specific/examples)
Cross sector	<ul style="list-style-type: none"> Resilience 	<ul style="list-style-type: none"> Cyber security (Mohammed Zumla) Asset resilience (Neill Guha) Workforce resilience? (Niall McDonald)
Cross sector Zak Rich	<ul style="list-style-type: none"> Competition 	<ul style="list-style-type: none"> Review options to increase both early and late competition Review Network Options Assessment process/methodology carried by SO to enhance competition
Cross sector Victoria Low	<ul style="list-style-type: none"> SEI - Stakeholder Engagement Incentive 	<ul style="list-style-type: none"> Review options for SEI, ie retain incentive, reform incentive or introduce bespoke SE related outputs?
Cross sector Graeme Barton	<ul style="list-style-type: none"> Innovation 	<ul style="list-style-type: none"> develop proposals for the RIIO2 innovation stimulus - for example developing/changing RIIO1 innovation stimuli such as NIA, NIC and IRM
Cross sector* Rebecca Pickett	<ul style="list-style-type: none"> Vulnerability 	<ul style="list-style-type: none"> Gas, electricity – updating existing standards (interruptions, methods to identify vulnerable customers etc.) Gas- looking into fuel poverty schemes
Cross sector Joanna Gaches	<ul style="list-style-type: none"> Whole system 	<ul style="list-style-type: none"> Intention is to capture benefits of whole system coordination where it is appropriate to do so through the price control. Unlikely to have a specific output. Will work with network companies to identify specific approaches
Cross sector Shai Hassid	<ul style="list-style-type: none"> Information revealing devices (IRDs) Return adjustment mechanism (RAMs) 	<ul style="list-style-type: none"> IQI? Reward/Penalty for good/bad BPs? Business plans incentives
Energy Systems Transition team	<ul style="list-style-type: none"> Charging and connections review Access reform SO Separation 	<ul style="list-style-type: none"> Improving and clarifying access arrangement &review of use of system charges to enhance flexibility (Jon Parker) Separate price control for SO (Grendon Thompson)

RIIO-2 cross sector policy development review : when



RIIO-2 sector specific policy development review : when excluding cost and volumes work



RIIO-ET2 policy work streams interactions- **updated**

RIIO-ET policy	GT	GD	ED	Cross sector	Energy system
Losses			✓ losses dis. reward		
BCF	✓	✓	✓		
SF6			✓		
EDR*					
VIP			✓ (?) (underground allowance)		
SSO	✓	✓ (stakeholder survey)	✓ (stakeholder survey)	✓ (SEI)	
ENS			✓	✓ (Resilience)	
Timely connections	✓ (?)	✓ (?)	✓		
Safety (TBC)	✓	✓ (Repex)	✓		
Network Access policy (TBC)					✓

RIIO-ET cost assessment team areas of work include:

- Costs (eg CBAs, benchmarking)
- Deliverables (eg generation connection)
- Mechanisms (eg volume driver, reopeners)



Working with all sectors (GT, GD, ED), cross sector and EST teams where relevant (eg cost review methods, competition and charging review and access reform respectively).

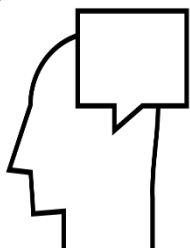
The RIIO-ET policy team is and will be working closely with ET-CA team, especially on development of mechanism.

* We will also look into options to streamline/align processes where applicable (eg, discretionary reward processes) 8

Working with the wider RII0-2 team

What we found:

- Some of the areas we identified have been, and will be further developed in full cooperation with RII0-2 teams, where relevant. This includes all the sector specific outputs such as: reliability, social and environmental outputs.
- Under the cross sector areas, we believe that resilience (asset and cyber), and stakeholder engagement incentive have the strongest interaction with our policy work - such as ENS, SF6 and stakeholder satisfaction outputs respectively.
- Other areas such as vulnerability and workforce resilience are less directly relevant for the purpose of this WG.



What you think (discussion)

- Are there any RII0-2 areas missing from the review?
- Are there any interactions that have not been identified?
- Is there any additional information you feel we could elaborate in our next WG?

Next Steps:

- We will continue our internal discussion with cross sector, sector specific, and wider network and system teams.
- We will collaborate with colleagues in Ofgem on wider areas such as access reform and access review.
- **We will update the next WG on those discussions where relevant to our work.**



Losses and Connections



Dale Winch

What are Transmission Losses?



- Electrical losses occur due to the physical resistance of carrying electricity on wires from the point of generation to the point of use.
- Losses increase with distance between supply and demand but less electricity is lost if it is transported at higher voltages.
- Total losses across the electricity transmission network represent, on average, some 1.7 per cent of the electricity generated, or 6 tera-watt hours (TWh).

Purpose of the losses incentive

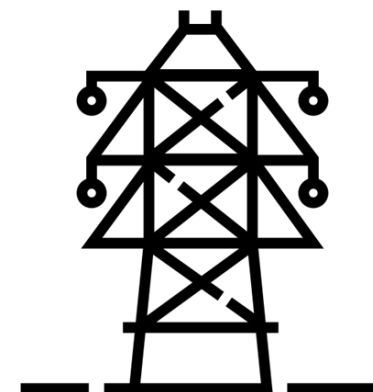
- Electricity losses matter. If losses were lower, then generators would need to produce less electricity to meet any given level of demand. In turn, this would lower carbon emissions associated with electricity generation.
- The incentive was created to encourage TOs to consider the life time impact of losses.
- The incentive is linked closely to the Business Carbon Footprint environmental output.
- Due to the role of the System Operator (SO) in actively managing the electricity network, the incentive is reputational-only for TPs.
- This incentive requires TOs to publish their individual strategy for transmission losses and report to stakeholders annually on their progress. With the aim of contributing to fewer transmission losses and providing long term value to consumers.

SHE Transmission	SP Transmission	NGET
Minimising losses through use of technology and upgrading parts of the system to operate at higher voltages and ratings.	Focus on asset changes. New and emerging technologies, and improving substation auxiliary supplies.	Use of Whole Life Value framework for investment decisions in new technology and equipment. Update of assessment methodology.

- Has this incentive mechanism helped to embed additional consideration for losses when making investment decisions? Can evidence be provided of this?
- What do you think of the annual reporting requirements? Is this sufficiently transparent and are stakeholders getting value from this?
- How can we ensure that these arrangements continue to incentivise good-value investments that make the most cost effective decisions (or lower CO₂) over the long-term?
- Is a reputational-only measure still appropriate?
- Is there scope for more collaboration on new methods and technologies to reduce losses (where this is controllable?)

- **What is the Timely Connection Offer incentive?**
- The incentive requires that all new or modified offers for connection to the transmission network are provided to customers within 90 days.
- This is linked closely to requirements set out in the Licence Conditions.
- There are penalty-only financial incentives for the Scottish TOs only.
- National Grid does not have a financial incentive as it is the contractual interface with all customers.
- There is a penalty of up to 0.5% of allowed revenue.

- **What is the purpose of the incentive?**
- The incentive was introduced to ensure that TOs make connection offers within the 90 day period, and consider wider improvements to the arrangements with customers.
- This penalty has been triggered in 2013/14 and 2014/15.





- Has this incentive helped TOs consider continuous improvements to the way connection offers are made?
- What additional measures can be added to incentivise effective connection alternatives, such as timely flexible connections, or other alternatives?
- Should this incentive be linked more closely to customer satisfaction measures?
- Should this incentive be applied to National Grid, following the separation from the System Operator?

Sustainability and low carbon

7 September 2018



Scottish & Southern
Electricity Networks

Our sustainability ambitions



The RIIO-T1 EDR incentive



A low carbon incentive





SUSTAINABLE DEVELOPMENT GOALS



Mitigating climate change

Our commitment

- Commitment to setting a Science Based Target for greenhouse gas emissions by May 2020
- Focus on reduction of our most material operational emissions: fleet and SF6
- Including carbon in our investment decision making

Measuring performance



9.3%

Reduction

in our Business Carbon Footprint between 2016/7 and 2017/18*



20.9%

Reduction

in GHG emissions from electrical losses between 2016/17 and 2017/18*

*Data up to 31 March 2018

Measuring performance



An estimated **3.6 Million tonnes of CO₂** displaced by the generation we have connected to our network since March 2013



Our network now supports **over 5GW** of clean, renewable electricity generation



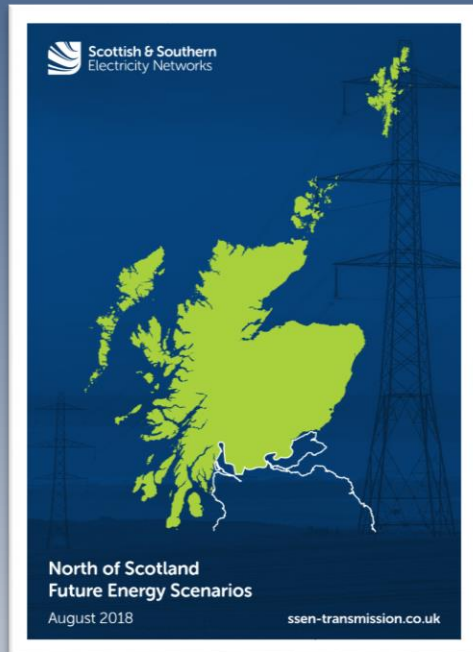
96% of all generation connected to our network is renewable



1,844 MW of low carbon generation connected to our network between 2013 and 2018.

*figures reported include small embedded generation connections

Planning for a low carbon future



PROACTIVE DECARBONISATION

Scottish consumers are supportive of decarbonisation, increasing their use of renewables and engage in the benefits of decarbonisation and decentralisation at local levels.

The focus is on capital investment in large scale projects and policy is in place to stimulate the development of less established, low carbon energy technologies.

Progress is inline with a pathway to limit climate change to 1.5°C.



LOCAL OPTIMISATION

Scottish consumers and businesses are driven by cost reduction as well as decarbonisation, investing in decentralised, domestic micro-generation to reduce their spend on energy.

The focus is on delivering decentralisation and decarbonisation through democratisation of energy supply to deliver improved affordability for consumers and businesses.

Progress is inline with a pathway to limit climate change to 2°C.



COST LIMITATION

Scottish consumers are less inclined to invest in micro-generation and renewable heating technologies, but energy efficiency continues to be a focus of national and local Government.

The focus is on delivering cost reduction in energy bills. Decarbonisation is a secondary consideration, as a result there is low uptake in domestic micro-generation and little focus on decentralisation.

Climate change targets are not met.



Christianna Logan
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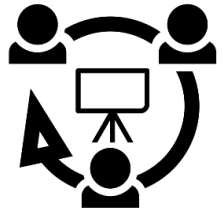


Scottish & Southern
Electricity Networks

Review of proposed Low Carbon Incentive



James Tyrrell



Recap WG 1

- We explored RII01 environmental incentives.
- Stakeholders were concerned that the RII01 incentives were disparate, process oriented, and not pushing TOs enough.
- We noted that it is important to consider what the right balance between driving competition, and encouraging collaboration where it's required.
- There was Interest from group in investigating an overarching Low-Carbon Incentive for RII02 (Sustainability First proposal).
- We explored how a low carbon incentive could be more central in the price control.
- It was suggested that the SO incentive suggested as a model for consideration.

What are we trying to achieve?

- We are trying to achieve an approach to environmental outputs that is less disparate, more holistic, more cohesive, increases consistency across sectors.
- We also want to ensure that where we have reputational incentives they have greater impact.
- As an exercise, we have taken Sustainability First's proposal and looked at a number of aspects of how a LCI might work.
- This is purely for the purpose of stimulating discussion, and not a formal proposal for RII02.

Initial thoughts based on Sustainability First's Proposal



- **Low-Carbon Incentive (Objective):** principle based incentive - An overarching environmental incentive focussing on driving a low carbon energy system.

Purpose of a potential LCI?

- Drive overall efficiency and transparency in achieving a carbon reduction;
- Provide a more comprehensive and cohesive approach to managing carbon;
- Ensure a stronger message on Low-Carbon; and,
- Define our goal on Low-Carbon and the TOs role

Scope: What could it cover? (from Sustainability First proposal)

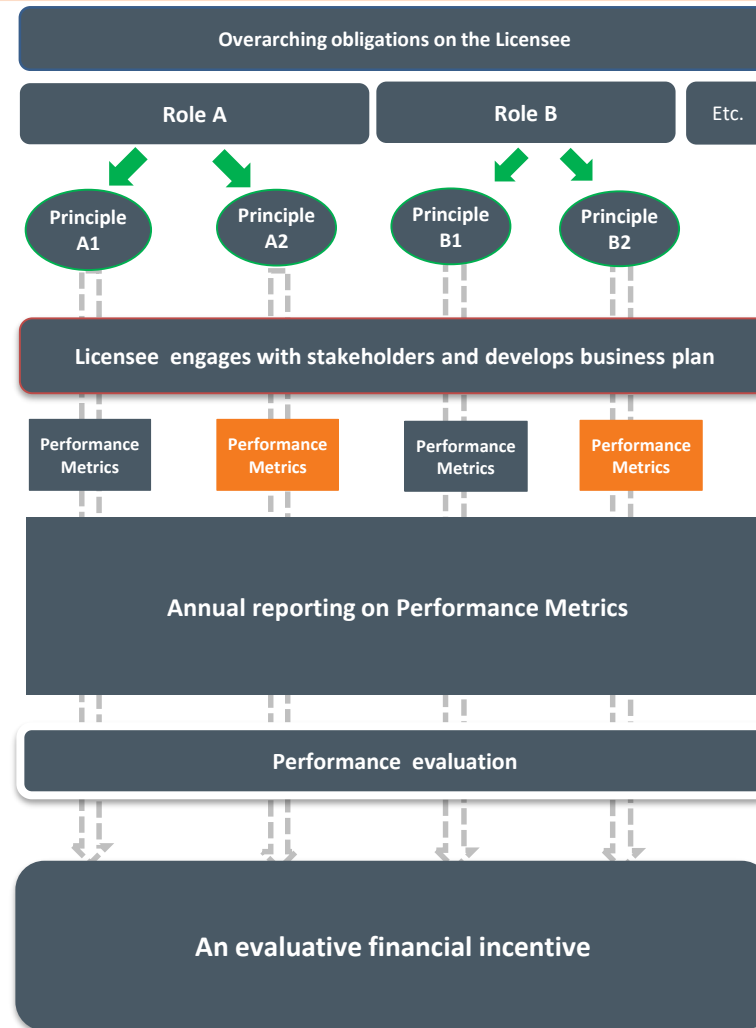
- Reducing carbon emissions from network operation (Transition to Low-Carbon energy system);
- Connecting low carbon energy sources (Sustainable network); and,
- Reducing/de-carbonising demand (Whole system outcomes).

- In terms of scope, Sustainability First's proposal appears to be going further than our RII01 environment package. Do stakeholders consider this is the right direction of travel?

Framework Cross sector and sector specific?

Cross
Sector

Sector
Specific



As an exercise to test how the SO incentive framework could be used as a starting point for a potential LCI, each key component of the framework has been mapped to a number of questions

Could the SO framework provide a starting point for a LCI?

SO incentive Framework	Considerations
<ul style="list-style-type: none"> Overarching objective/roles for SO 	<ul style="list-style-type: none"> Drive companies to reduce carbon emissions?
<ul style="list-style-type: none"> A set of guiding principles for SO behaviour/activities 	<ul style="list-style-type: none"> Scope of incentive? Reward to only target performance over and above BAU
<ul style="list-style-type: none"> SO develops forward looking plan (annually) with stakeholders 	<ul style="list-style-type: none"> TOs and SO have different time horizons from planning and delivery – TO incentive scheme could operate over a longer period? (initial review end of year 1, then full assessment years 3 and 5), health check year 3. Determine the role of the Business Plan – how should the incentive interact with the Business Plan submissions?
<ul style="list-style-type: none"> Performance metrics developed by SO for each principle 	<ul style="list-style-type: none"> What is the right mix between automatic metrics and panel assessment?
<ul style="list-style-type: none"> Panel assessment of performance 	<ul style="list-style-type: none"> How much weight is on the panel? What's an appropriate mix?
<ul style="list-style-type: none"> Size of penalty/reward determined following assessment 	<ul style="list-style-type: none"> Reward/penalty – BAU as the baseline, Should below BAU be penalised? Potential cap and collar

Advantages and disadvantages this approach?

Advantages	Disadvantages
<ul style="list-style-type: none"> • More holistic model that may better capture interactions 	<ul style="list-style-type: none"> • Potentially more difficult to compare company performance
<ul style="list-style-type: none"> • Could allow companies increased flexibility in how they deliver outcomes 	<ul style="list-style-type: none"> • Rewards/ outcomes potentially unclear
<ul style="list-style-type: none"> • Potentially more ability to deal with future uncertainty 	<ul style="list-style-type: none"> • Potentially high administrative burden
<ul style="list-style-type: none"> • Could help to avoid potential double counting or windfall gains and losses 	

- What could a Low Carbon Incentive cover? What components would be cross-sector and what components would be TO specific?
- What would happen to existing environmental outputs, would they be incorporated into a LCI?
- What other advantages/disadvantages may there be to a LCI?
- What may be an appropriate frequency for a LCI?

Wider policy questions

- What could the overall purpose of a LCI be?
- In terms of policy objective, Would this be going further than what is already in place and is this right?
- Is there a better methodology for assessing qualitative metrics than panel assessments?
- Are there other ways to achieve our goal, i.e. a more holistic/ consistent approach across sectors?

More detailed questions

- How can we benchmark performance improvement (e.g. currently poor performer vs good performer)?
- What would be the right mix between competition and collaboration?
- Should there be a cap on the maximum earnings from a potential LCI?

Reliability – Overview of Value of Lost Load studies by London Economics and ENWL



Cissie Liu

What we heard



- We discussed various aspects of the reliability incentive (eg targets, incentive rate, use of VoLL, measuring embedded generation, etc.).
- We debated whether reliability should be BAU and the incentive removed.
- Concern was raised for more cross sector discussion on impact and coordination between reliability and resilience.

What we're doing



- We're exploring TPCR4 performance, policy intent, and role of NOMs.
- We're exploring the ENWL VoLL NIA Project and London Economics VoLL study.
- We're gathering practical examples of scenarios of surpassing output targets for better understanding.

Recap on Value of Lost Load



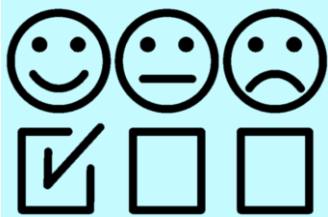

- **Value of Lost Load (VOLL):** the theoretical value that consumers attribute to security of electricity supply. VoLL is an economic concept used across governments, EU market, within network companies, etc.
- **Willingness to Pay:** The maximum price which a consumer will pay for unit of a good/service. This value is used to estimate VoLL.
- **Willingness to Accept:** The minimum price that a person is willing to accept (or pay to avoid) something negative . This value is used to estimate VoLL.
- **RIIO1 Incentive rate:** £16,000/MWh based on London Economics study (£16,940/MWh peak winter)

London Economics

- **Purpose:** Estimate the value of lost load (VoLL) for domestic, small and medium sized businesses (SMEs) and industrial and commercial (I&C) electricity consumers in Great Britain (GB).
- Jointly commissioned by Ofgem and DECC in 2013.
- **Survey sample:** 2,074 respondents

Electricity North West

- **Purpose:** Identify how VoLL differs by customer segments (eg vulnerable customers, homeworkers, off main gas network customers, etc) , and how this may change due to future low carbon technologies.
- **NIA Project** undertaken by ENWL and Impact Utilities.
- **Project lifetime:** Oct 2015-Oct 2018
- **Estimated expenditure:** £731,000
- **Survey sample:** 6,000 respondents

	London Economics Study	ENWL
Survey Design 	<ul style="list-style-type: none"> Pilot survey conducted. Domestic survey conducted online and by telephone. SME survey conducted as computer assisted telephone interview (CATI) survey. 4 attributes - duration, time of day, day of week, and season. 	<ul style="list-style-type: none"> Engaged Customer Panel focus groups informed perception of VoLL & pilot surveys. Domestic survey conducted online, telephone & face to face. SME conducted online. 8 attributes - Type, advanced warning of power cut, frequency, duration, time of day, day of week, assistance for customers vulnerable, and proactive info.
Sample 	<ul style="list-style-type: none"> Random sample from YouGov's database 2,074 survey respondents - 1,524 domestic and 550 SMEs. 	<ul style="list-style-type: none"> Random sample from across GB with specific segmentation 6,000 survey respondents – 5,000 domestic and 1,000 SMEs 50% respondents from North West, 50% from rest of GB

Willingness to Pay vs. Willingness to Accept

	Willingness to Pay	Willingness to Accept
Definition	<ul style="list-style-type: none"> The maximum price which a consumer will pay for unit of a good/service. 	<ul style="list-style-type: none"> The minimum price that a person is willing to accept (or pay to avoid) something negative.
Observations	<ul style="list-style-type: none"> Several economic theories explain differences between WTA and WTP (eg income effect, loss aversion, endowment effect, etc.). WTA/WTP ratio may be greater when there is little information available , higher loss aversion, and hypothetical bias (Fernandez et al.). 	<ul style="list-style-type: none"> London Economics uses WTA value for VoLL. WTA estimates are usually larger than the comparable WTP estimates. When consumers are used to enjoying a service that they pay for, they typically want a greater payment in order to bear a loss of that service than they are willing to pay to retain it.

London Economics

- Load-share weighted average across domestic and SME users for winter, peak, weekday - **£16,940/MWh**
- £10,289/MWh for domestic users based on WTA
- £35,488 for SME users based on WTA

****Please note price base is different for LE and ENWL values****

Electricity North West

- Final conclusions to be published **October 2018**
- Using results to replicate London Economics' value, load-share average entire year: **£19,458/MWh**
- £12,135/MWh for domestic users annual average
- £40,303/MWh for SMEs annual average
- Existing approach:
 - undervalues the needs of certain customers
 - not reflective of those dependent on Low Carbon Technologies (LCTs)

Key differences between studies

Key Differences	Explanation
Survey tool development	<ul style="list-style-type: none"> ENWL invested large up front resources for pilot survey and ensured final survey tool was understandable for layman.
Attributes selected	<ul style="list-style-type: none"> ENWL focussed heavily on attributes associated with vulnerable customers.
Segmented customer group & focus on vulnerability	<ul style="list-style-type: none"> ENWL went further to segment customer base (eg worst-served customers, fuel poor, off-gas networks, geographical rural and urban classifications, etc.).

Observations

- ENWL study much larger, however focussed half of sample in North West region.
- Segmented attributes may not be relevant to transmission side.
- Some customer segmentation may be useful (eg rural vs urban classifications), but not all (eg vulnerability) for transmission side.

1) The customer base between ED and ET is very different. Is ENWL's differentiation between customer segments applicable/suitable for ET?

- Is segmentation useful to get accurate representation of VoLL value across the country?
- Are certain customer segments useful but other's aren't, as TOs aren't able to differentiate actions on the grid that is too granular?
- Is segmentation not useful because transmission does not have a direct relationship with end user?

2) Use of WTP vs. WTA more appropriate?

- WTA assumes zero electricity provided. Should WTA assume SQSS minimum level of service? Would this change the value?
- Is WTP potentially more appropriate approach because there is a minimum level of service already provided, and therefore we are more interested in knowing what extra amount customers are willing to pay for a higher service?
- WTA value is usually larger than WTP, what does this mean for VoLL?

Stakeholder Satisfaction Output- Update



Eilidh Alexander

What we heard:

- There was agreement that this incentive has been effective in influencing TO behaviours.
- There was discussion around aligning the content of the Surveys and KPIs across the Tos.
- There was discussion about how the Stakeholder Engagement Incentive (SEI) interacts or overlaps with the SSO.
- It was suggested to introduce this incentive as a relative measure.
- We drew comparisons between the SSO and OFWAT's SIM.



Direction of Travel:



- The strength of the incentive: too strong, too weak, just about right?
- An absolute or a relative incentive?
- Are surveys and KPIs the best measure of performance?
 - If yes; how will the content of the components be set in RIIO2
 - If not what other options are available for the SSO
- Investigating how the SEI and SSO can be aligned in RIIO2

Next Steps:

- Continue further discussions with cross sector team on SEI.
- Meet with the TOs to discuss the approach for aligning Survey content in RIIO2.



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.