

RIIO-2 Innovation Workshop

18 September 2018, 13:30-17:00



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13:30 Welcome, context and outcomes for the day

13:40 Lessons learned from RIIO-1 innovation and RIIO-2 Framework Decision

- **Examples of successes / barriers encountered as a result of RIIO-1 innovation stimulus and improvements as a result of the reforms introduced by the 2017 innovation review**

14:15 Workshop discussion:

- **Future network innovation**

14:45 Coffee break

15:00 RIIO-2 Innovation Stimulus

15:30 Workshop discussions:

- **Thoughts on possible options for each of the reform areas**

17:00 Thanks and next steps

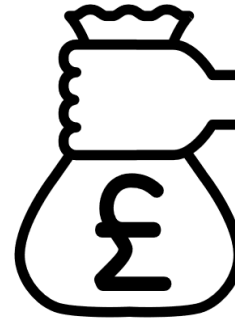
**13:30: Welcome,
and why we're
here.**

- Purpose of the workshop is to inform Ofgem's policy development ahead of the RII02 December consultation on innovation.
- We would like to discuss:
 - Lessons learned from RII01 innovation and the impact of 2017 innovation reforms;
 - The innovation needed to support the energy system transition; and
 - Our emerging thinking on the three reform areas outlined in our decision document.
- We plan to publish workshop materials on our website, along with details of future workgroups.

**13:40: Lessons
learned from RIIIO-
1 innovation and
RIIO-2 Framework
Decision**



Incentivise innovation
as core business



Deliver financial benefits
for network customers



Fund new technologies
that aren't BAU



Facilitate transition to
low carbon economy



Encourage collaboration
of companies and 3rd
parties



Facilitate sharing of
learning

Technical and commercial innovation encouraged through:

Core price control incentives



Specific Innovation schemes

- **The totex approach** – to equalise incentives between capital expenditure and operational expenditure so companies not unduly incentivised towards ‘capex’ and consider novel ‘non-build’ solutions
- **The totex incentive mechanism (TIM)** – to encourage network company efficiency and innovation; sharing the resulting financial benefits between companies and consumers
- **Longer price control period** – to allow companies to retain the benefits from the TIM for longer

- **Network Innovation Allowance (NIA)** – part of each licensee’s price control allowance to be spent on smaller-scale research, development and demonstration projects
- **A Network Innovation Competition (NIC)** – to fund larger scale flagship development and demonstration projects
- **An Innovation Roll-out Mechanism (IRM)** – to fund roll-out of proven innovations with carbon and/or environmental benefits in to business as usual

We intend to **transition more innovation spending to BAU** using the incentives framework

We propose to **continue to provide an innovation stimulus** where projects can demonstrate long-term value to consumers but are at higher-risk of under-delivery by the core RIO-2 framework

We propose **3** broad areas for reform:

Coordination

Greater coordination with wider public sector innovation funding and support where this is in the interest of GB network consumers

Balance of support

Increased alignment of funds to support critical issues associated with the energy transition

Role of 3rd parties

Enabling increased 3rd party engagement and exploring direct access in light of disruptive innovation

Network Innovation Review (2017)

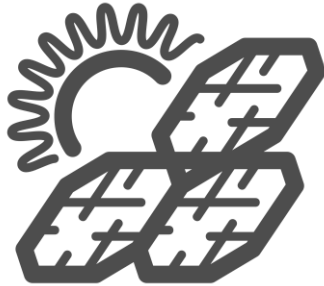
- Removed Successful Delivery Reward (SDR) because it wasn't delivering value. Companies therefore now required to make a **10% non-refundable contribution** to the costs of projects
- Funding for Electricity **NIC was reduced from £90m pa to £70m pa** due to lack of take-up
- Introduced three main reforms that should increase third party involvement in network innovation:
 - i. Requirement to **publish annual innovation strategies** which give third parties visibility of future priority areas
 - ii. Requirement to issue an **annual call for ideas** to third parties
 - iii. Increasing **number of NIC bids** that can be submitted by network companies from two to four

Stakeholder Feedback

- + Improved culture and collaboration, inc. cross sector thinking
- + Innovation strategies have improved cohesive approach to broader challenges
- + Flexibility of the NIA (range of TRLs) allowed a wide range of projects
- Difficulty of incorporating innovative products/processes to BAU
- Stop-start element to within-year funding can hold back spending
- Scope of funding and the limitations of the requirement for Direct Impact

**14:15 Workshop
discussion**

- Significant energy system transition challenges ahead to ensure the network is ready for the rollout of electric vehicles, embedded generation, future of heat etc. For example:



- RIIO-2 Framework Decision in July to target innovation stimulus funding at projects that might not otherwise be delivered under the core RIIO-2 framework.
- Now that a culture of innovation is more embedded in network companies, we want innovation projects which consider the operation and maintenance of the network to be increasingly funded as BAU.
- Instead we want to prioritise innovation funding at projects which address the challenges of the energy system transition.
- We need to consider what these energy system transition innovation projects could look like and how innovation stimulus funding will prioritise such projects.

Questions for discussion:

- 1. Who and what is likely to drive innovation to facilitate the energy system transition?**
- 2. If funding is available, what energy system transition innovation projects could we see in the next 5/10 years? Please give examples of possible network innovation projects in each sector**

15:00 RIIIO-2
Innovation
Stimulus

- Six RIIO-1 innovation stimulus objectives remain broadly relevant for RIIO-2.
- Considering the scale of the energy transition challenges, we want to put more emphasis on projects that will support a transition to a low carbon economy.
- Below are the four design principles which have shaped our work so far and will continue to shape detailed development of the RIIO-2 innovation package.

- 1. We want to drive innovation to help reduce costs and deliver better value for consumers**
- 2. We want to continue to drive the culture within network companies so that innovation becomes part of their business as usual activities, focussing funding only on those projects that would not otherwise be delivered under the RIIO framework**
- 3. We want to simplify innovation funding whilst retaining sufficient flexibility to adapt to the changing innovation requirements**
- 4. We want innovation funding to support network companies in facilitating the transition to a low carbon economy**

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We propose **3** broad areas for reform:

Coordination

Greater coordination with wider public sector innovation funding and support where this is in the interest of GB network consumers

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Role of 3rd parties

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Transition more innovation spending to BAU

- The big innovation challenges of the future are likely to relate to the energy transition rather than incremental network improvements.
- Objective is to encourage network companies to deliver these more incremental changes as BAU, rather than via innovation stimulus.

Options:

Greater clarity re BAU expectations

Providing clearer guidance to companies on what we expect them to undertake as BAU

Reduce scope of stimulus so not supporting higher TRLs

Could expect later stage innovation (i.e. demonstration) to be delivered through BAU as less risky

Challenge via Enhanced Engagement

Consumer engagement groups could challenge the level of network ambition on innovation

Totex and TIM

Totex and the incentive mechanism should continue to incentivise companies to innovate and reduce costs in order to share in the underspend

Longer allowances

Providing certain funding for BAU innovation on a longer term where companies can demonstrate benefits to consumers

Business Plan Incentive

Incentivise companies to be ambitious through their business plans. Potential upfront reward and higher level of funding for high quality innovation strategies. Progress against these monitored and funding potentially adjusted based on behaviour. Stronger incentives/penalties in this regard may help to encourage the 'less engaged' companies

Increased alignment of funding to the energy system transition

- The low carbon energy transition likely to need significant levels of innovation to meet future challenges. There may also be fewer natural incentives to innovate in these areas as greater cooperation needed or because benefits accrue to wider parties.
- Objective is to fund a much higher proportion of projects that specifically address challenges associated with energy system transition (rather than operation and maintenance of network).
- The energy transition challenges may change over time, particularly as Gov policy develops, and roles and responsibilities change. Need to ensure that innovation funding can adapt accordingly

Options:

Focus funding on energy system transition challenges

Tighten eligibility criteria so funding focused on energy transition challenges.

Retaining flexibility to fund other projects if justified

Although focussing on energy transition, could still fund network improvement projects which deliver consumer benefits

Discretionary Funding Pot

Could fund larger, energy transition projects on a discretionary basis. Could set high bar and require network companies to demonstrate collaboration, criteria around third party involvement.

Industry-wide Innovation Strategies

Build upon the existing industry-wide Electricity and Gas innovation strategies and use these to identify priority funding areas

Differentiated network company contribution

May require higher contribution from companies for projects that are focused on network improvements, rather than energy transition

Adaptability

Could adjust funding and eligibility on an annual or biennial basis (could be on part of the funding to allow for longer term planning on a proportion of core funding)

Whole System Outcomes

Could use innovation funding to support whole system outcomes and potentially fund network improvement projects if these demonstrate clear whole system benefits

Greater coordination with wider public sector funding and support

- There is a great deal of other public sector innovation funding and support available from several different bodies. This funding can have misaligned aims and duplicate each other. The various sources of funding and support can also make it hard for innovators to navigate the sector.
- Objective is to coordinate Ofgem, BEIS, UKRI and other public sector innovation funding and reduce 'wasted' innovation funding through misaligned aims and duplication

Options:

Formalisation of coordination between public sector energy innovation funding

Stronger coordination with BEIS/UKRI to ensure strategy underpinning funding is aligned. Could be delivered by strengthening the Energy Innovation Board or via a Joint Memorandum of Understanding on how to align funding (objectives and mechanisms).

Joint funding

Joint funding from Ofgem and other organisations for strategic issues and projects that cover the end-to-end energy system.

Joint Advice Service

An energy advice service, providing some of the services similar to the Innovation Link and Energy Innovation Centre, could be established across Ofgem, BEIS and other funders to provide a single point of contact for all energy innovators and 'triage' them to relevant innovation funding.

Increased third party involvement in network innovation

- Future challenges associated with greater consumer data and engagement, more distributed generation and new business models as well as greater consideration of whole-system outcomes may mean that third party involvement is vital to ensure that network innovation adapts. There is potentially greater scope for disruptive innovation with significant benefits by increasing third party participation.
- Objective is to encourage increased third party involvement in network innovation, while ensuring that the innovation is fit for purpose and can be implemented in the future on the energy network.
- We also want to ensure that we are streamlining the process and not creating an unnecessary or undeliverable burden on Ofgem and network companies.

Options:

Building on RII0-1 Third Party engagement

Build upon number of improvements made as result of innovation reform in 2017 and strengthen requirements on network companies to facilitate third party involvement, eg tougher governance to ensure network companies are accountable if they do not engage with third party non-network companies

Maintaining Network Innovation Allowance

Arguably greater involvement seen on NIA, potentially due to process / reduced regulatory burden as well as the size and scale of the projects funded. Could build on and maintain this accessibility

Specific Third Party Competition

Ring-fence funds for third party ideas only. This could be led by network companies (either individually or sectorally) with strict rules, set by Ofgem, around conducting the competition.

Direct access

We could provide non-network companies direct access to innovation funds via an innovation competition.

**15:30 Workshop
discussion**

Questions for discussion:

- 1. What are the practicalities of implementation for the possible options?**
- 2. Would the options achieve the desired objective?**
- 3. What impact would these options have on network innovation?**

Split into four groups:

- A. Transitioning more innovation spending to BAU**
- B. Aligning funding with energy system transition**
- C. Greater coordination with other public sector innovation funding**
- D. Increased third party involvement**

**Thanks and next
steps**

- In the December consultation we aim to provide details of:
 - Types of innovation we would expect companies to deliver through core framework incentives
 - Examples of types of innovation we would expect to fund through the RIIO-2 innovation stimulus
 - Broad innovation stimulus package as well as core framework elements which should encourage innovation
 - How the broad innovation stimulus package will target innovation at energy transition challenges and increase third party involvement
 - What we would expect high performing companies to provide in their business plan innovation strategy, covering BAU and broader ambition, and how the quality of this strategy will be rewarded
 - Broadly how we intend to monitor progress and behaviours of companies throughout price control and potentially use this to re-evaluate funding provided
 - How we will coordinate with Government and other funders to ensure strategically aligned
 - Any significant sectoral differences there may be in the funding including how might impact ED

**Appendixes:
Additional info for
reference only**

Network Innovation Allowance (NIA)

- Set allowance that each network company receives to fund small-scale innovative projects
- Percentage of allowed revenue (up to 1%) awarded based on quality of company’s Innovation Strategy
- Within RIIO-1 determination, all network companies awarded between 0.5%-0.7%
- Around £500m available in total (2013-2021 for GT, GD, ET; and 2015-2023 for ED)
- 75% of awarded funding must be spent externally (i.e. to third parties)
- [Report from Energy Catapult \(2017\)](#) found that NIA was single source of funding for SME energy innovation funding
- 822 projects up to 16/17 (403 electricity projects, 418 gas projects, 1 electricity and gas project)
- Projects range from £1500 to several £m
- ~140m spent up to 16/17

Network Innovation Allowance	
Network company	"NIA Percentage" - Percentage of revenue awarded
Gas Transmission (2013-2021)	
NGGT	0.7
Gas Distribution (2013-2021)	
NGGD/Cadent	0.7
NGN	0.7
SGN	0.5
WWU	0.5
Electricity Transmission (2013-2021)	
NGET (including ESO)	0.7
SPT	0.5
SHET	0.7
Electricity Distribution (2015-2023)	
ENWL	0.7
NPg	0.6
WPD	0.5
UKPN	0.5
SPEN	0.5
SSEN	0.5

Network Innovation Competition (NIC)

- Annual competition for large more complex projects. Separate competitions for gas and electricity. Competition run by Ofgem and funding award decided by independent panels.
- £720m available (2013-2021 for GT, GD, ET; and 2015-2023 for ED)
- Electricity:
 - £70m available annually (reduced from original sum of £90m)
 - 19 electricity projects up to 2018
- Gas:
 - £20m available annually
 - 13 gas projects up to 2018
- Third party involvement in many projects, including third party led projects such as I²EV / 'MyElectricAvenue' (EA Technology led project using a back to back commercial arrangement with SSE)
- ~ £225m awarded up to 2018

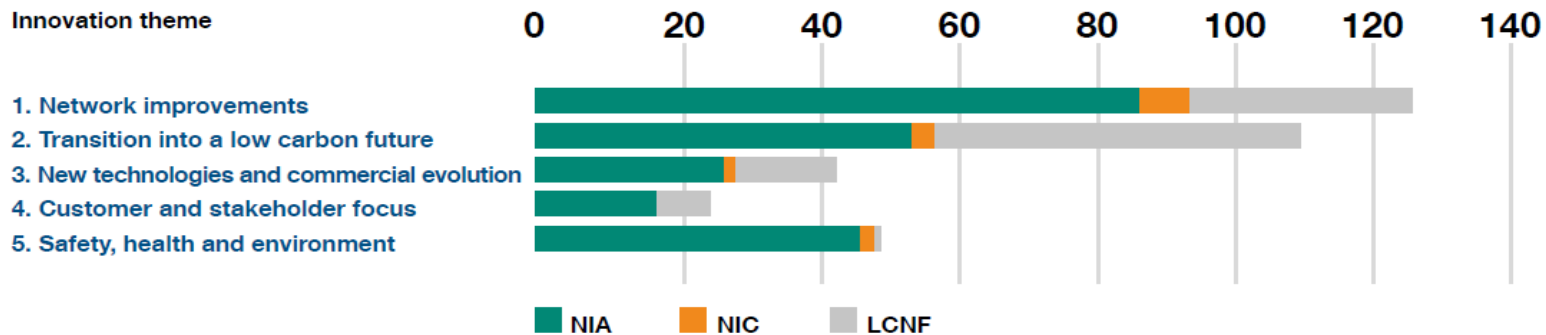
Network Innovation Competition		
Network company	Number of projects funded up to 2017	Total value of funding awarded provided up to 2017 (£m)
Gas Transmission (2013-2021)		
NGGT	1	5.67
Gas Distribution (2013-2021)		
NGGD/Cadent	5	23.68
NGN	3	14.4
SGN	4	21.8
WWU	0	0
Electricity Transmission (2013-2021)		
NGET (including ESO)	3	26.9
SPT	3	31.39
SHET	3	20.73
TC Ormonde OFTO	1	9
Electricity Distribution (2015-2023)		
ENWL	1	4.7
NPg	-	-
WPD	2	7.8
UKPN	2	18.4
SPEN	3	25.7
SSEN	1	13.1
Total	32	223.27

Innovation Rollout Mechanism (IRM)

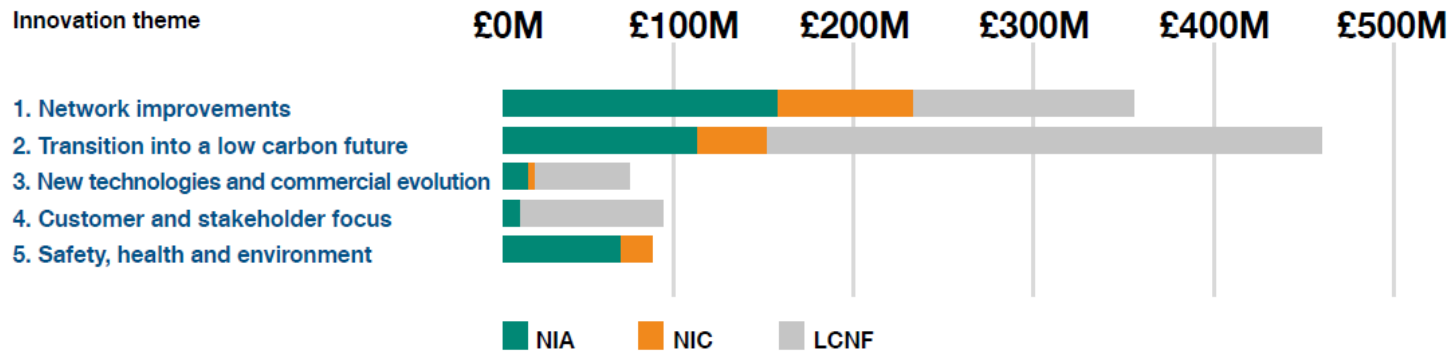
- To fund roll-out of proven innovations with carbon and/or environmental benefits in to business as usual
- Applications for funding must be made by network companies during one of two application windows.
- Funding only awarded if companies cannot rollout innovation using totex allowance.
- No cap in available funding
- Electricity funding awarded to date in RIIO-1:
 - Electricity distribution: SPEN awarded £8.01m to deploy integrated network constraint management. We however rejected two funding applications (for total of £36.85m) from SPEN.
 - Electricity transmission: SPT awarded £24.28m to deploy a new type of conductor on parts of network to increase capacity.
- No gas funding applications to date in RIIO-1.

Electricity (source: [EN A Electricity Innovation Strategy, March 2018](#))

**Figure 9:
Number of innovation projects**



**Figure 10:
Value of innovation projects**



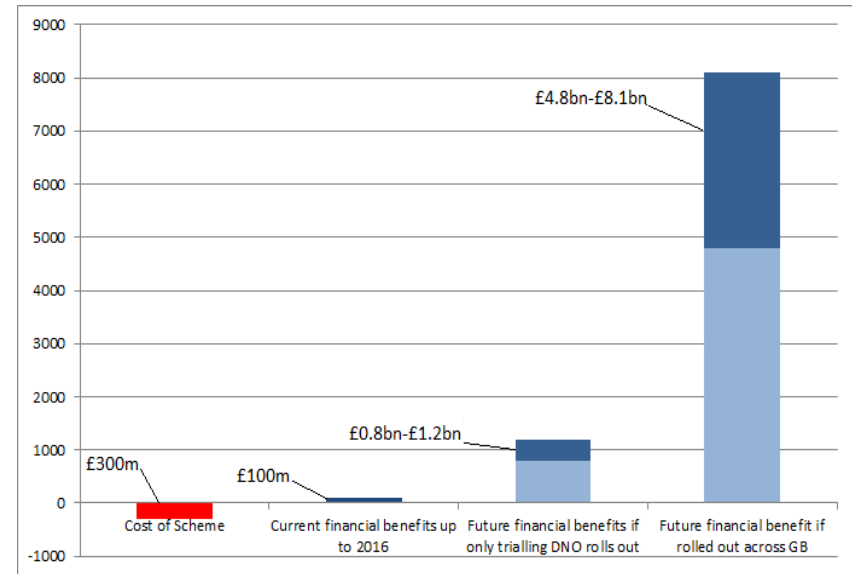
Gas (source: [ENA Gas Innovation Strategy, March 2018](#))

	ALL NETWORKS					
	NIA Projects		NIC Projects		All Projects	
Theme	Number	Value (£M)	Number	Value (£M)	Number	Value (£M)
Future of Gas	40	£16.31	5	£32.74	45	£49.04
Safety and Emergency	58	£10.31	0	£-	58	£10.31
Reliability and Maintenance	145	£36.11	1	£6.30	146	£42.41
Repair	45	£9.47	2	£13.70	47	£23.17
Distribution Mains Replacement	65	£27.87	0	£-	65	£27.87
Security	0	£-	0	£-	0	£-
Environment and Low Carbon	49	£18.34	5	£21.17	54	£39.51
Totals	402	£118.42	13	£73.90	415	£192.32



LCNF Study (Pöyry) – Key findings

- Between £4.8 - £8.1bn of financial benefits by 2030.
- In addition £600m - £1.2bn of carbon abatement benefits.
- Companies are more innovative



Network Innovation Review – Key Lessons

- We want companies to make a real contribution to the costs of projects
- We want to enhance access to the NIC for third parties
- We want the overview and direction for innovation projects to be clearer
- We want to reduce the administrative burden of the innovation mechanisms

Solutions already identified

- Companies to make a 10% non-refundable contribution to the costs of projects
- Companies to issue a call for third party led projects each year
- Companies to work together to develop innovation strategies for the gas and electricity sectors
- Make various changes to make the operation of these mechanisms less onerous

Sector	Market	Approaches to innovation	Examples of areas in which innovation is delivered	Funding
Telecoms	<ul style="list-style-type: none"> National-level competition in mobile National-level competition in fixed with incumbent having significant market power Technical innovation common due to continued improvements in digital technology, as well as competitive pressure 	<ul style="list-style-type: none"> Innovation delivered through facilitating competition such as access pricing 	<ul style="list-style-type: none"> Fibre roll-out 4G network development 	<ul style="list-style-type: none"> Government initiatives
Rail	<ul style="list-style-type: none"> National monopoly or infrastructure provision Services subject to competitive franchising 	<ul style="list-style-type: none"> Stimulus package Innovation Fund Strategic R&D fund Through the price control 	<ul style="list-style-type: none"> Track renewal efficiency Alliancing 	<ul style="list-style-type: none"> Government Department for Transport Through companies existing revenue mechanisms
Water	<ul style="list-style-type: none"> Regional monopolies for water and sewerage infrastructure provision Non-household retail market open to competition Innovation delivered through competition for major projects 	<ul style="list-style-type: none"> Through the price control Public-Private Partnerships Co-operation with third parties 	<ul style="list-style-type: none"> Leakage management Ice Piggling Separating out markets for bio-resources Markets for eco-services Thames Tideway Tunnel 	<ul style="list-style-type: none"> Initiatives funded by companies through competitive procurement In PR19, companies with the most innovative and ambitious plans will receive an additional return.
Airports	<ul style="list-style-type: none"> Large number of airports with effective competition Only two airports regulated on the basis of the market power test 	<ul style="list-style-type: none"> Non-funding stimulus activities Through the price control 	<ul style="list-style-type: none"> Service Quality Regime Future Airspace Strategy 	<ul style="list-style-type: none"> Through companies existing revenue mechanisms

Source: [UK Regulators Network, Innovation in regulated infrastructure sectors, January 2015](#). Table supplemented with CEPA analysis.

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.