

Innovation and Network Price Controls: The RIIO experience

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ofgem

Objectives of our innovation schemes



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

Future difficult to predict

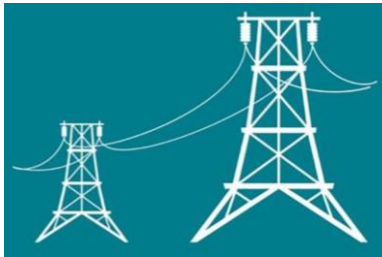
“Soon gas will be too cheap to meter”

“In the 2010s we will not need gas or oil at all”

“In 2 years [from 2013] oil will break \$200 a barrel”

“Solar is unlikely to be affordable in the UK”

£720m available (2013-2023)



- £70m available annually for Electricity Sectors
- 19 electricity projects since 2013
- Schemes ranging from electric vehicle charging to building new, smaller overhead line supports



- £20m available annually for Gas Sectors
- 13 gas projects since 2013
- Schemes ranging from hydrogen blending to AI robotic technology for precision excavation

~£225m awarded in 5 years

Around £500m available (2013-2023)

Allowance based on company
size ~£1m- £5m per annum

822 projects so far

~£140m spent in 4 years

**403 electricity
projects**

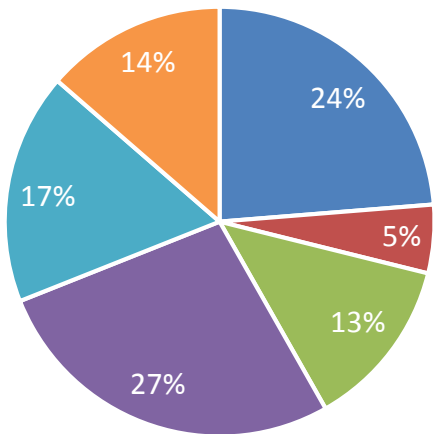
**418 gas
projects**

**1 electricity
and gas
project**

Innovation in Numbers – Companies (Electricity)

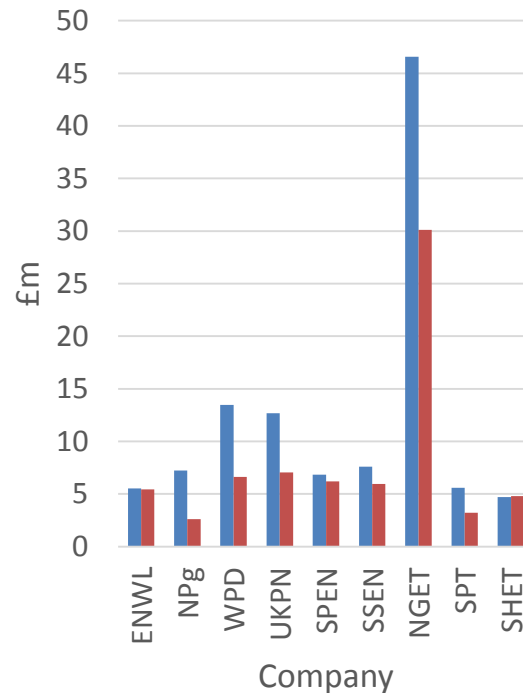
LCN FUND

- WPD ■ SPEN ■ NPg
- UKPN ■ SSEN ■ ENW



Proportion of £213m Second Tier Funding awarded to electricity distributors.

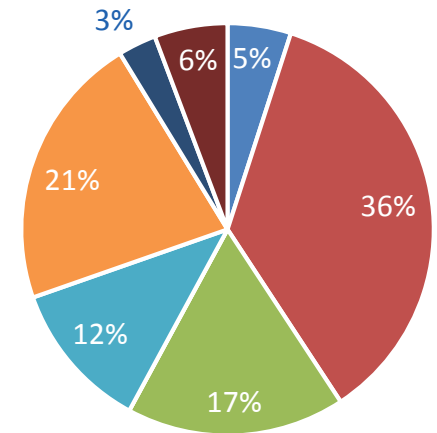
NIA



NIC

- WPD ■ SPEN
- NGET ■ NPg
- UKPN ■ SSEN
- Electricity North West ■ TC Ormonde OFTO

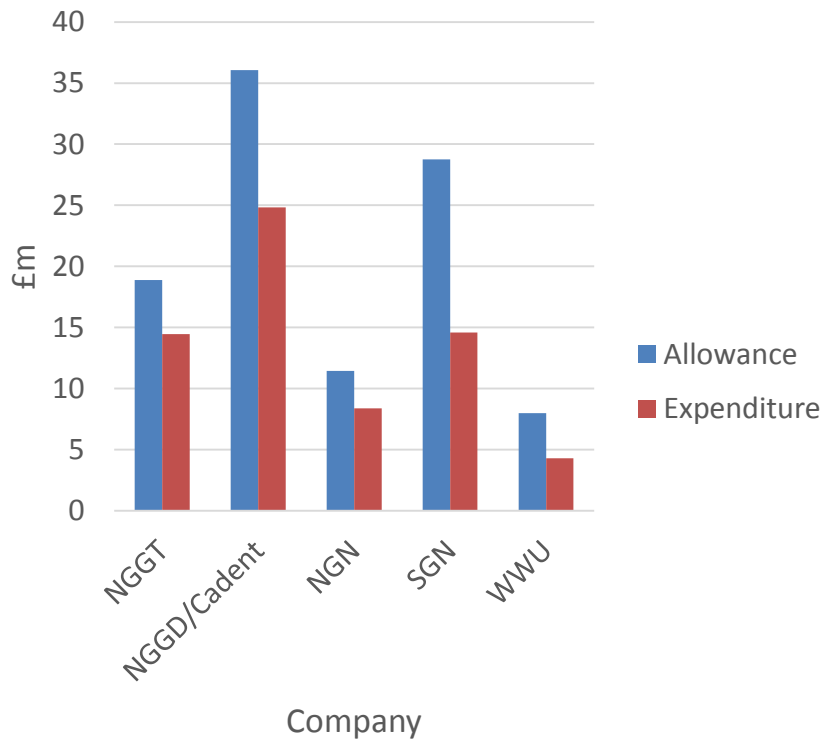
- Allowance
- Expenditure



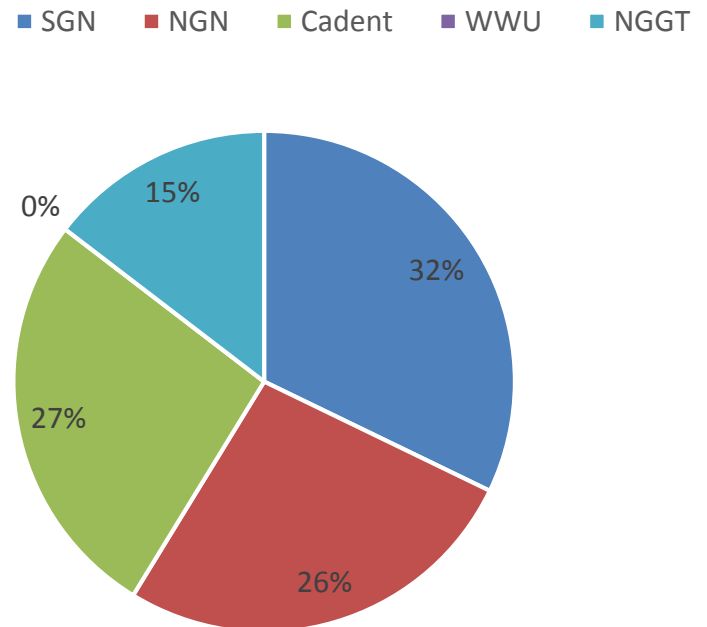
Proportion of £156m NIC Funding awarded to electricity licensees.

Innovation in Numbers – Companies (Gas)

NIA



NIC

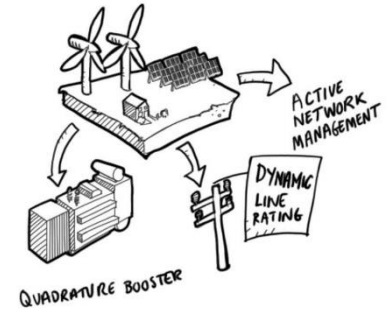


Proportion of £70.5m NIC Funding awarded to each gas transporter.

Examples of Funded Innovation Projects

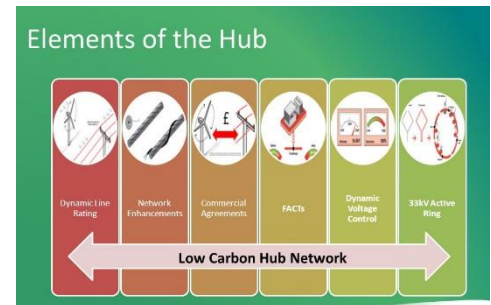
Flexible Plug and Play
(LCN Fund Tier 2)
£9.7m from 2012-2014

- Trialled new technologies and commercial arrangements in order to connect distributed generation (DG) in rural areas around Peterborough, March and Wisbech in Cambridgeshire.



Lincolnshire Low Carbon Hub
(LCN Fund Tier 2)
£3.5m from 2012-2015

- Facilitate the connection of locally generated power
- Trial how to provide active smarter design to allow most suitable generation sites to connect to the network



Paw Patrol
(NIA)
£18,500 from
2016-2017

- Trialled dog training to locate gas leaks to help speed up repairs and reduce the need for our engineers to dig exploratory holes in the road



Details/ updates on all innovation projects can be found on:

<http://www.smarternetworks.org/>

Examples of Funded Innovation Projects

Recharge the Future
(NIA)
£239,750 from
2017-2019

- Model the growth and profiles of on street, work, residential and commercial chargers connected directly and indirectly to the LV, HV & EHV distribution networks.

FUSION
(NIC)
£7.1m from 2018-2023

- Implement the Universal Smart Energy Framework (USEF) across North East Fife as a new open access market place for flexibility
- Successfully trialled in the Netherlands

My Electric Avenue
(LCN Fund Tier 2)
£9m from 2013-2015

- Develop a novel monitoring and control solution, 'Esprit' to manage the supply of electricity to EVs connected to distribution network



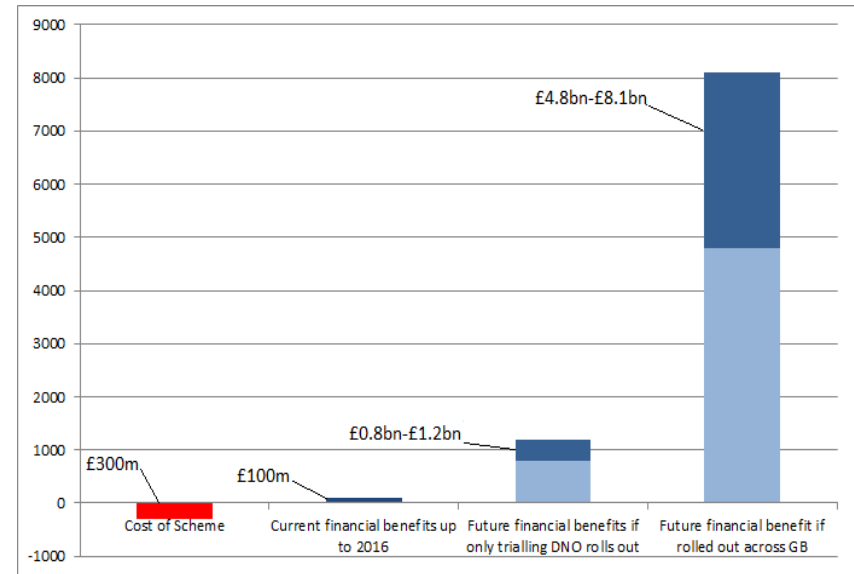
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Have innovation schemes delivered value for money?

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

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 RIIO-2 framework

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

Coordination

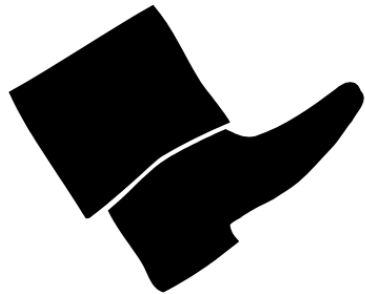
Greater coordination with wider public sector innovation funding and support where this is in the interest of GB network consumers

Balance of support

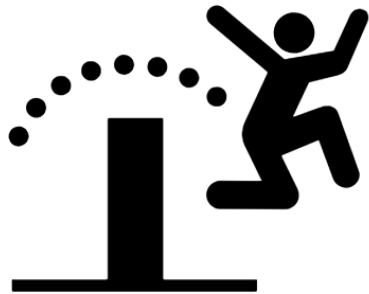
Increased alignment of funds to support critical issues associated with the energy transition

Role of 3rd parties

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



- Network companies have made good progress, but need to go a step further



- Next decade will see more challenges, and network companies will need to stay ahead of the curve



- Ofgem will be working with stakeholders and further collating our lessons learned to refine the schemes for RIIO2 to decrease prices for customers

Ofgem is the Office of Gas and Electricity Markets.

Our priority is to protect and to make a positive difference for all energy consumers. We work to promote value for money, security of supply and sustainability for present and future generations. We do this through the supervision and development of markets, regulation and the delivery of government schemes.

We work effectively with, but independently of, government, the energy industry and other stakeholders. We do so within a legal framework determined by the UK government and the European Union.