

How regulation can be a win-win for stakeholders

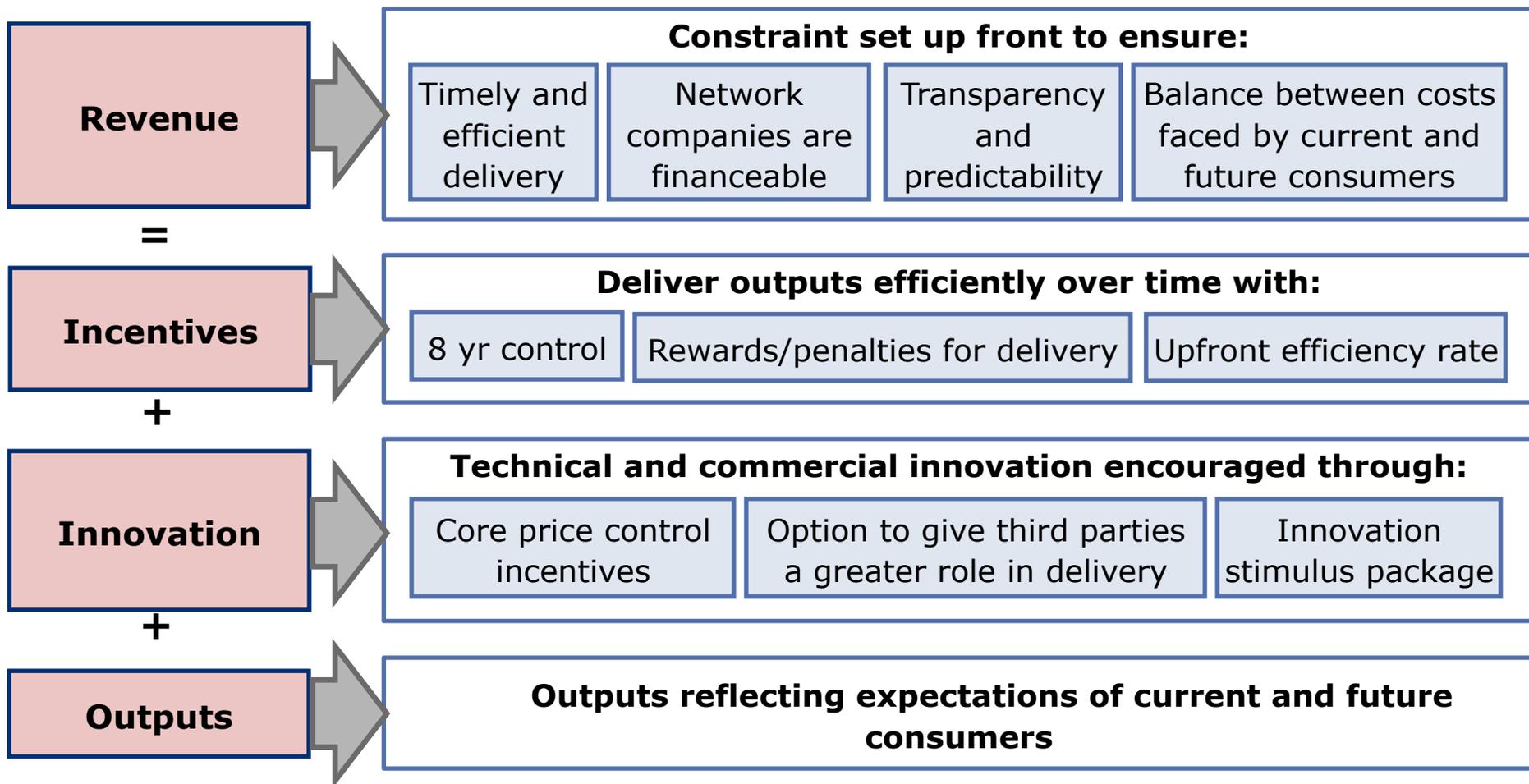
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6th Smart Grids & Cleanpower
Conference

3-4 June 2014, Cambridge, UK

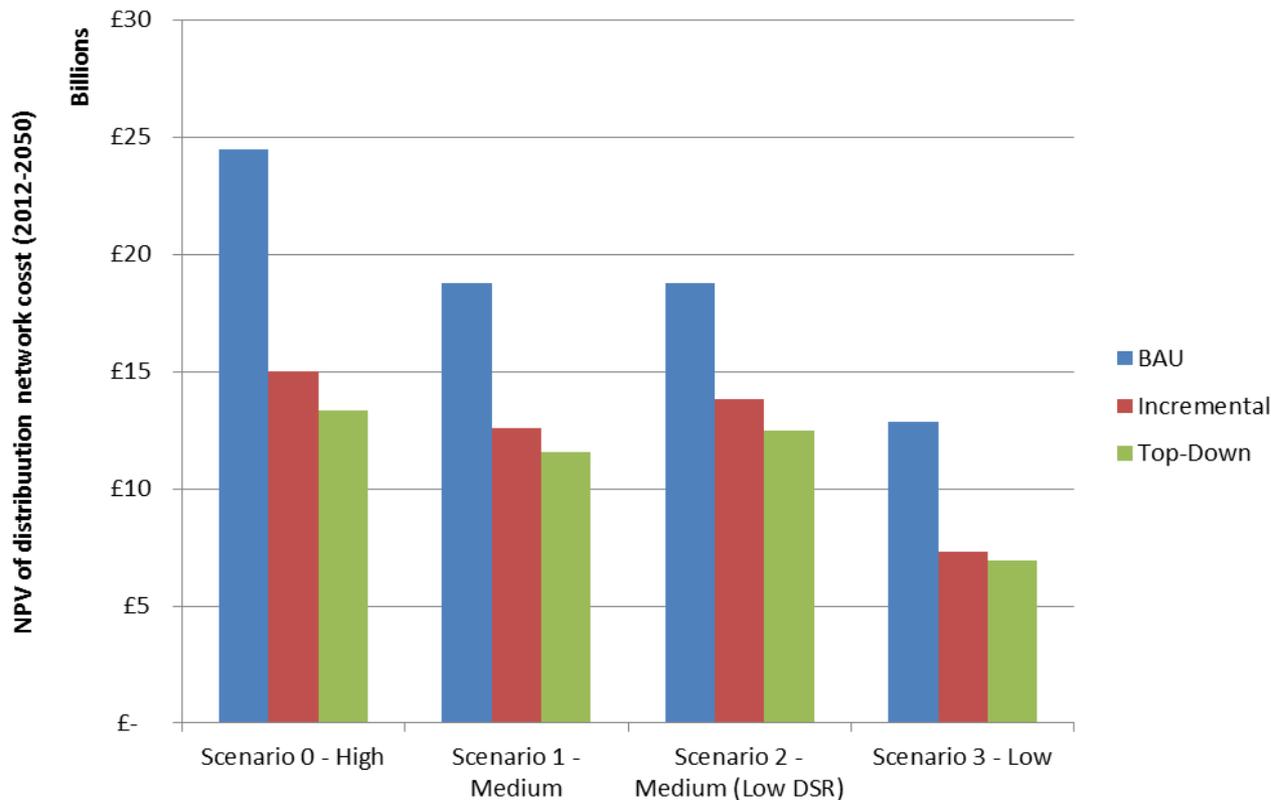
www.hvm-uk.com



The Challenge

UK Government anticipating rise in in take up of solar PV, heat pumps and electric vehicles. Predicted level of uptake will drive substantial costs.

Under all UK Government scenarios, deployment of smart grids (both incremental and top down) can reduce longer term network costs of decarbonisation compared to business as usual (BAU)



Difficult for DNOs to charge existing domestic customers upfront for connecting new appliances in their home.

Reinforcement costs will need to be paid through the price control

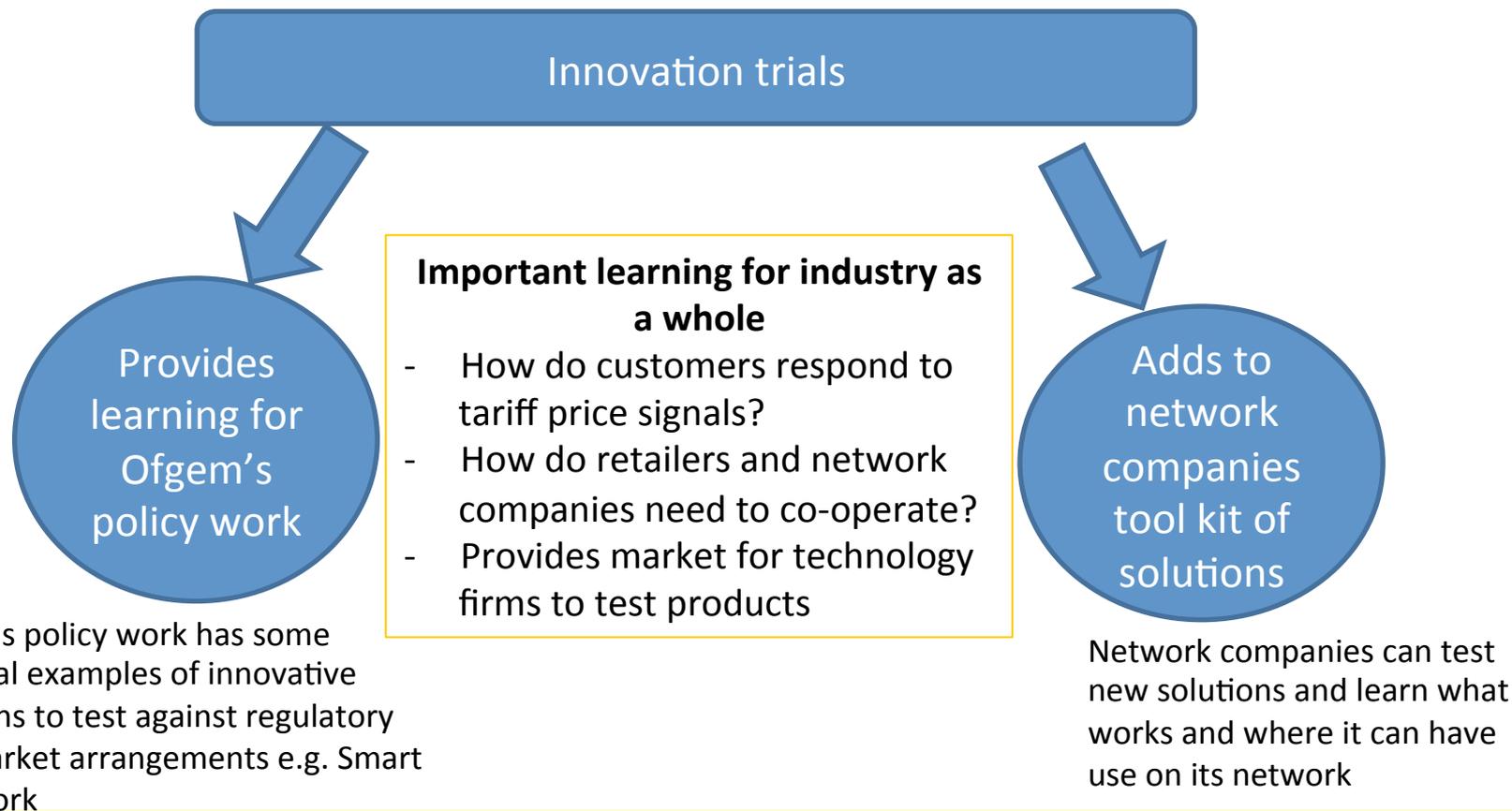
Costs of a GB distribution network required to meet different low carbon scenarios out to 2050

Ofgem wanted to develop a regulatory framework which would incentivise companies to innovate in order to reduce future costs

- Current network price controls contain two tiers of innovation funding
 - Specific allowance for small scale projects & annual competitions for flagship projects
- Expectation that solutions tested should provide financial and environmental/carbon benefits to customers compared to existing options
- Learning must be shared between licensees

DPCR 5 – electricity distribution (April '10- March '15)	RIIO Innovation Stimulus – transmission and gas distribution
<p><u>LCN Fund - First Tier:</u></p> <ul style="list-style-type: none"> • Allowance for trialling new technologies and commercial arrangements to better prepare for low carbon economy and provide financial benefit. • 37 projects funded with a value of roughly £20m • 16 projects completed. 	<p><u>Network Innovation Allowance (NIA):</u></p> <ul style="list-style-type: none"> • Allowance for trialling research, new technologies and commercial arrangements. • Key criterion is need to demonstrate that the method being trialled could lead to financial and environmental benefits.
<p><u>LCN Fund - Second Tier:</u></p> <ul style="list-style-type: none"> • DNOs compete for central fund worth £64m per annum. • Allows trialling new technologies and commercial arrangements to better prepare for low carbon economy. • Roughly £200m spent to date on 19 projects. • Projects beginning to conclude and benefits being seen in business plans for RIIO-ED1 	<p><u>Network Innovation Competitions (NICs):</u></p> <ul style="list-style-type: none"> • Separate gas and electricity competitions worth £18m and £27m respectively. • Licensees compete for central funds • Allows trialling new technologies and commercial arrangements with low carbon and/or environmental benefits. • Six flagship projects funded in first competitions worth £32.9m

Regulated funding to allow companies to trial innovative approaches to reduce tomorrow's costs



- Innovation funding provides scope to test new solutions and learn where there are benefits
- Once benefits proven companies strongly incentivised to deploy them under RII0
- Ofgem uses trials to get early insight into where regulatory or market changes are required to facilitate roll out & time to make the necessary changes

- **Reporting requirements**

- Six monthly progress reports
- Project close down reports

- **Collaboration and learning portal**

- **We expect the companies to collaborate on NIC and LCN fund projects with a range of project partners**
- Provide access to project information and learning
- <http://www.smarternetworks.org/>

- **Annual conference**

- LCN Fund conference (incorporated innovation stimulus projects from 2014)
- The 2014 LCN Fund Conference is being co-hosted by the ENA and Scottish and Southern Energy Power Distribution. It will be held during October 2014 at the Aberdeen Exhibition & Conference Centre.
 - www.lcnfundconference.co.uk
 - lcnf@energynetworks.org

Customer-led Network Revolution

(CE Electric UK)

Trialling of smart meters and customer-side interactions with new network technologies.



Low Carbon London – a learning journey

(UKPN)

Innovation to facilitate low carbon technologies into urban and suburban networks. Leverages London's low carbon initiatives.



Total Funding value = £63.6m

Low Carbon Hub (CN)

Investigating how new network technologies can increase the capacity of generation (mainly wind) that can be connected to a rural distribution network. Exploring new commercial arrangements.



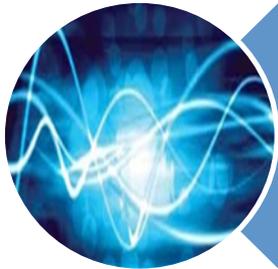
LV network templates for a low carbon future

(WPD)

Assessing the impact of low carbon technologies connected to LV network to create generic network models to assist DNOs in efficiently planning and operating networks.



Recruitment and installation in progress – learning emerging



Capacity to Customers

Releasing capacity on the high voltage network by combining network automation and new commercial arrangements.



FALCON

Developing an investment model for deployment of new techniques on the high voltage network.



Flexible Plug and Play

Trialling ways to connect more wind generation to the extra high voltage network



New Thames Valley Vision

Developing a tool to help forecast where low carbon technologies might connect to the network and how best to respond to them.



Flexible Networks

Releasing capacity on the HV network by co-ordinating innovative engineering practices



Bristol

Investigates use of battery storage with solar PV in homes, schools and an office to provide network and customer benefits.



Accelerating Renewable Connections (Scottish Power)

Reducing the time taken and cost of connecting distributed generation.



Customer Load Active System Support (Electricity North West)

Exploring the relationship between voltage and demand - to use voltage control to manage network constraints.



Flexdgrid (Western Power Distribution)

Developing new fault level assessment processes, real-time monitoring of fault levels and deployment of alternative mitigation solutions



Innovation squared (SSE)

investigating the use of a domestic “smart socket” to manage network constraints caused by Electric Vehicles



Smarter Network Storage (UK Power Networks)

Investigate the financial benefits of using storage to defer or avoiding network reinforcement and selling flexibility services.

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.