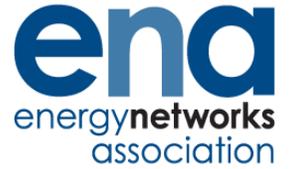


Energy Networks Association

Energy network innovation strategies: Stakeholder engagement workshop

16th January 2020, The Lighthouse, Glasgow

Welcome and agenda



10:00 Registration and networking

10:30 Welcome

Tamar Bourne, Senior Project Manager, Regen

10:35 Introduction, background and principles of network innovation

Randolph Brazier, Head of Innovation and Development, ENA

Tamar Bourne, Senior Project Manager, Regen

11:00 Network innovation themes

Ray Arrell, Senior Project Manager, Regen

Presentation covering the thinking behind the proposed new shared themes and findings from first phase of stakeholder engagement

John Richardson, Head of Innovation, SGN

Watson Peat, lead engineer, future networks, SP Energy Networks

Reflections from network company perspective

Q&A, discussion and polls



Welcome and agenda



- 11:40** **Network innovation theme breakout discussions**
Facilitated round table discussions to identify focus areas under each theme.
- 11:45** **Session 1: Consumer vulnerability**
- 12:20** **Session 2: Net zero and the energy system transition**
- 13:00** **Lunch break**
- 13:45** **Session 3: Optimised assets and practices**
- 14:25** **Session 4: Flexibility and commercial evolution**
- 15:05** **Session 5: Whole energy system**
- 15:45** **Close and next steps**
- 16:00** **End**



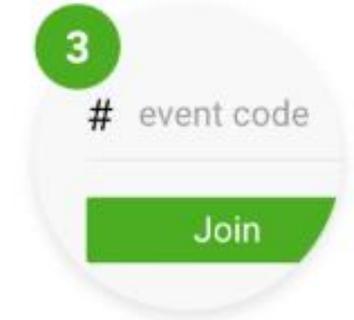
Voting using slido.com



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Go to slido.com



Enter event code

WiFi: Lighthouse 2
Password: BellRock

Event code: #EnergyInnovationGlasgow

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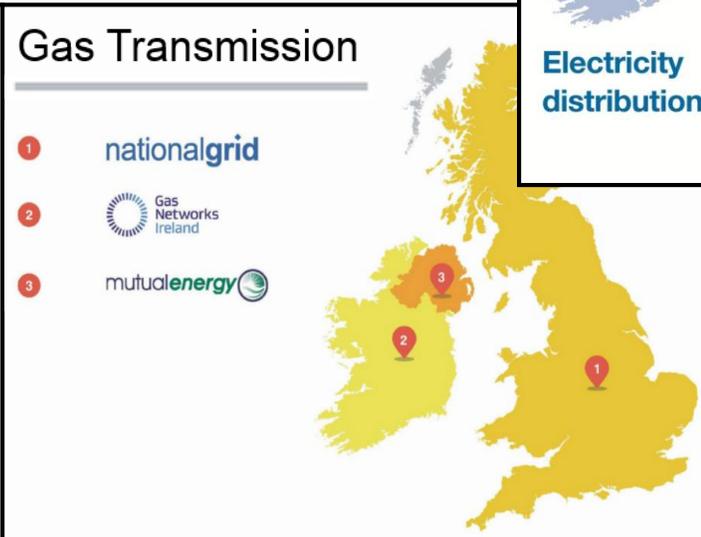
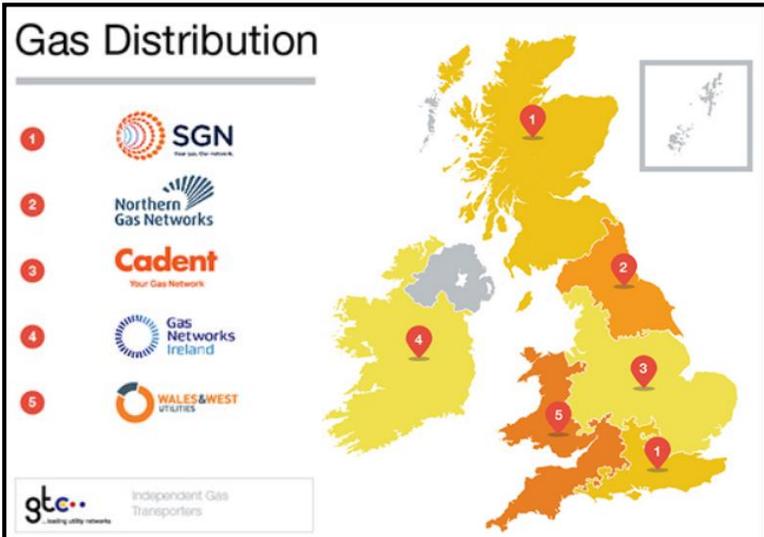
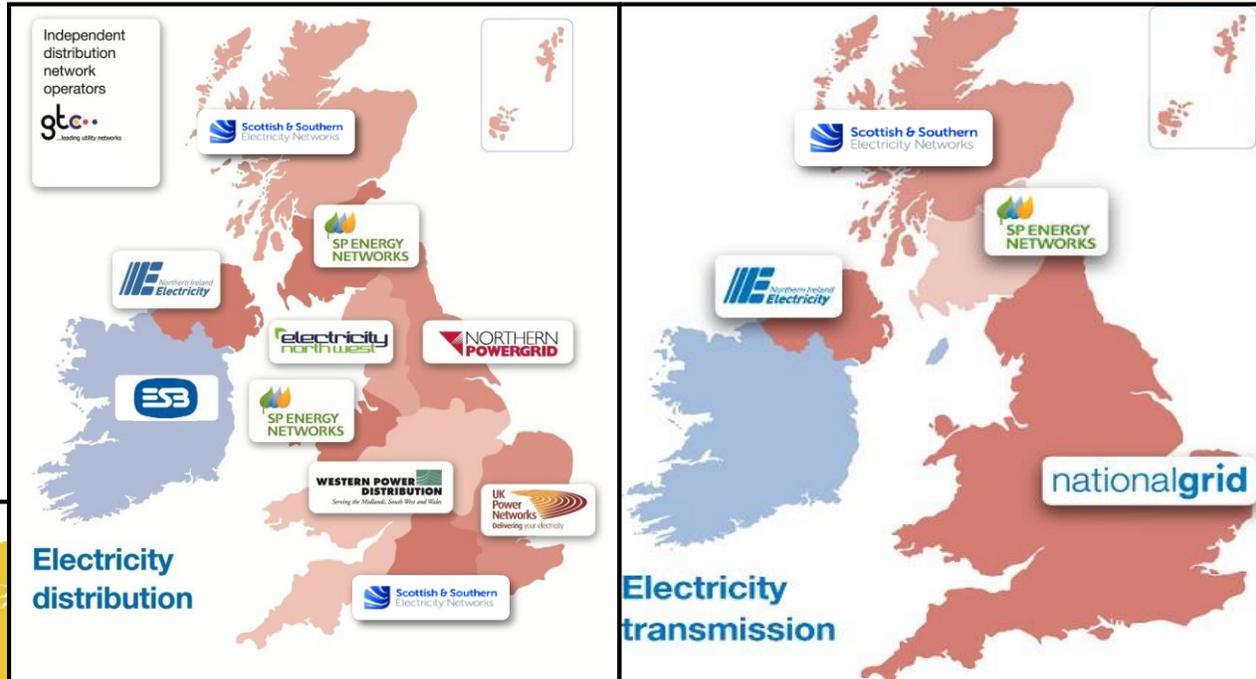
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Introduction and background to network innovation

Randolph Brazier, Head of Innovation & Development, ENA

Introduction to ENA

- 29 million electricity customers
- 21.5 million gas customers



- 180,000 miles of gas network
- 519,304 miles of electricity network

Network Innovation under RIIO

➤ Innovation

- We take a 'learn by doing' approach to transitioning to a smarter, flexible energy system
- We do this using innovation
- Innovation is critical to understanding and solving new challenges

➤ Network Innovation Allowance (NIA)

- To fund smaller innovation Projects that will deliver benefits to customers

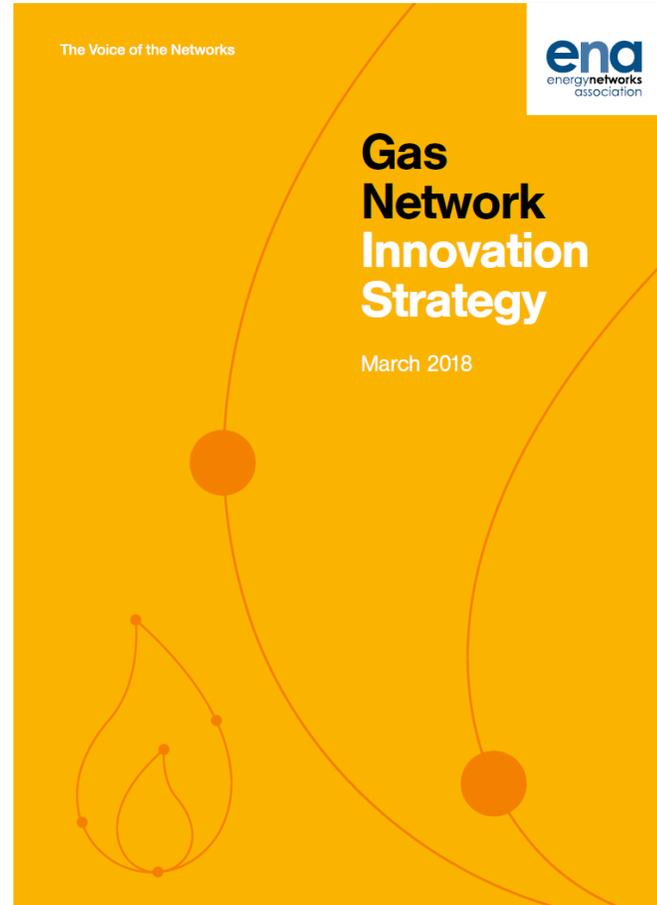
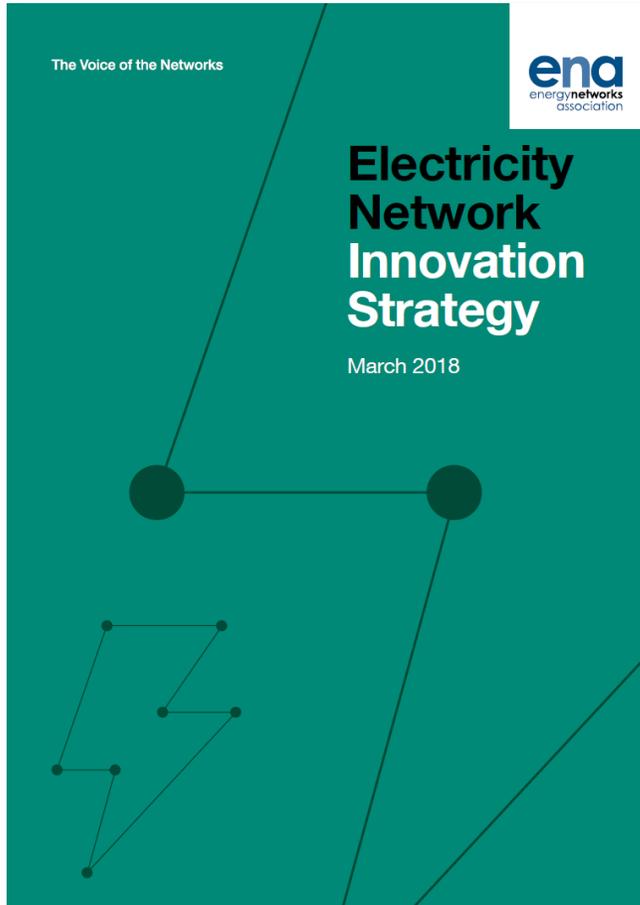
➤ Network Innovation Competition (NIC)

- An annual competition to fund selected flagship innovative projects that deliver low carbon and environmental benefits to Customers

£1.7bn

- Independent research by Pöyry showed that under the previous LCNF regime, electricity network innovation projects alone will deliver £1.7bn of benefits to customers by 2031.

Proposed approach to updating network innovation strategies



- First published in March 2018
- On behalf of the energy networks
- Updating joint innovation strategies
- Clear, accessible, engaging
- Backed by strong consultation and wide industry engagement

Developing Innovation Themes



Industry Trends:

- 3 D's
- Evolving Policy
- Customer Choice
- etc



Existing innovation strategies

Stakeholder input is critical



How can you get involved?

➤ Smarter Networks Portal

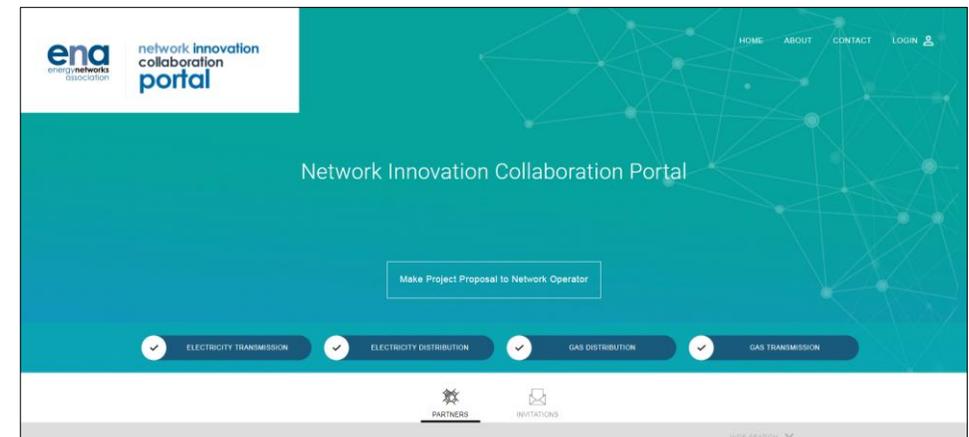
- Database of previous network innovation projects
- Over 1400 projects to date
- www.smarternetworks.org

➤ Network Innovation Collaboration Portal

- Pitch your innovation project to the networks
- Receive notifications when the networks are looking for ideas
- <http://www.nicollaborationportal.org/>

➤ Annual Innovation Dissemination Events

- Utility Week Live, Low Carbon Networks & Innovation Conference, Electricity Innovation Forums, etc

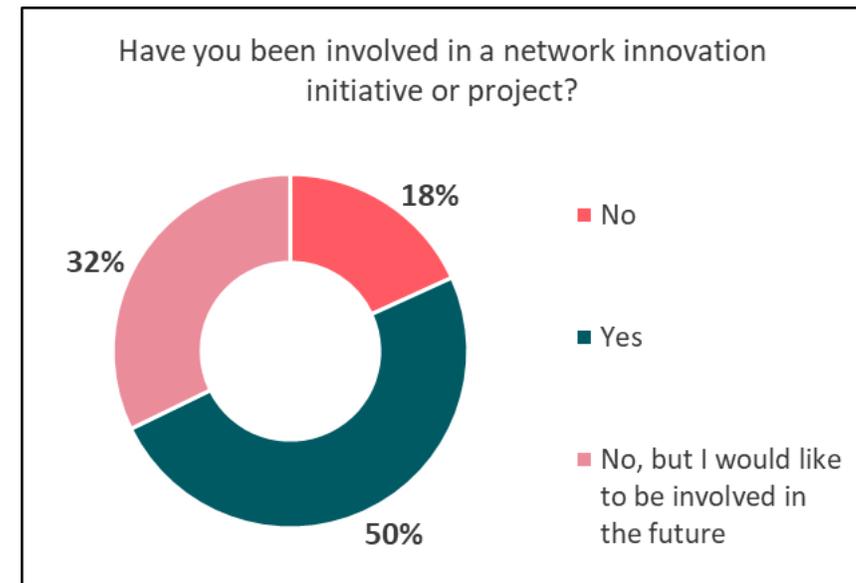
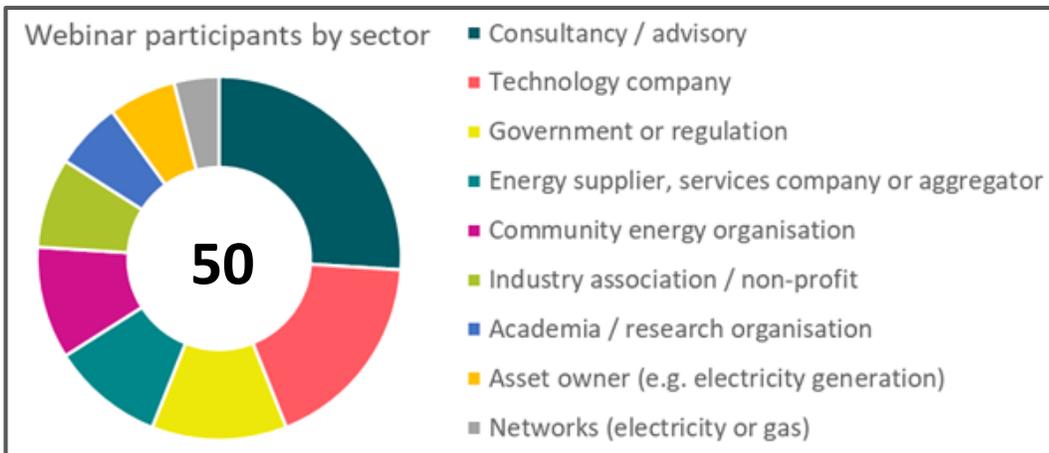
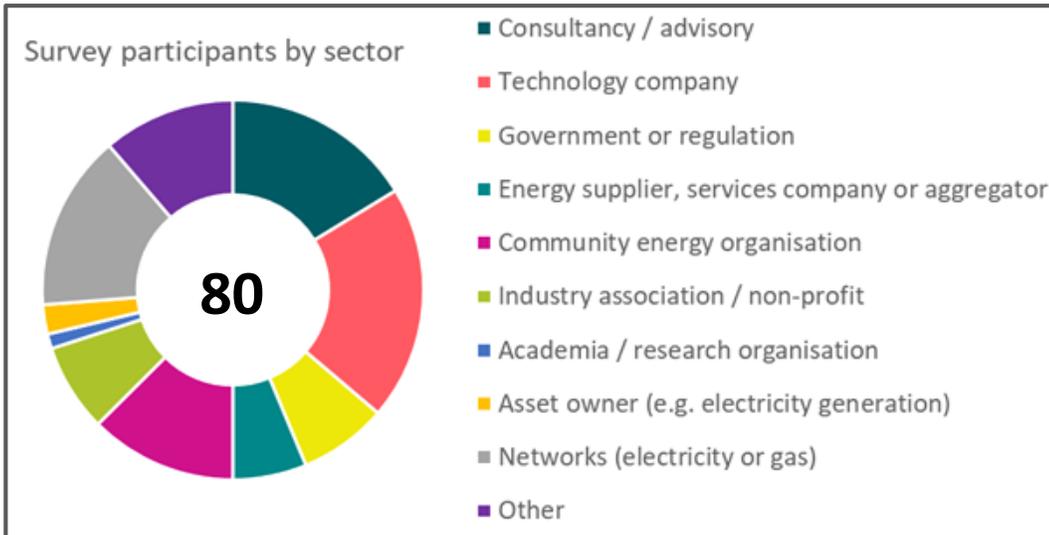


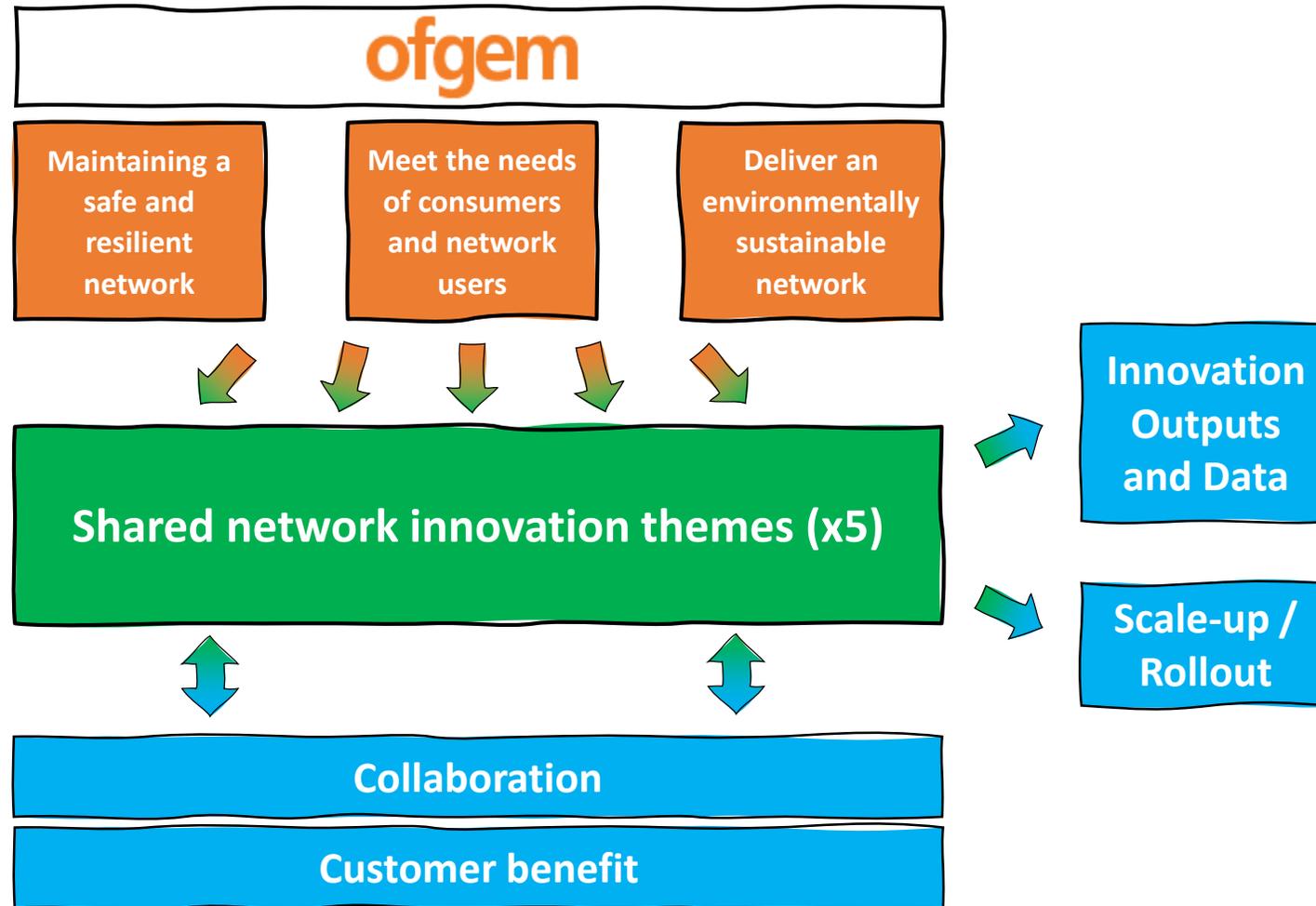
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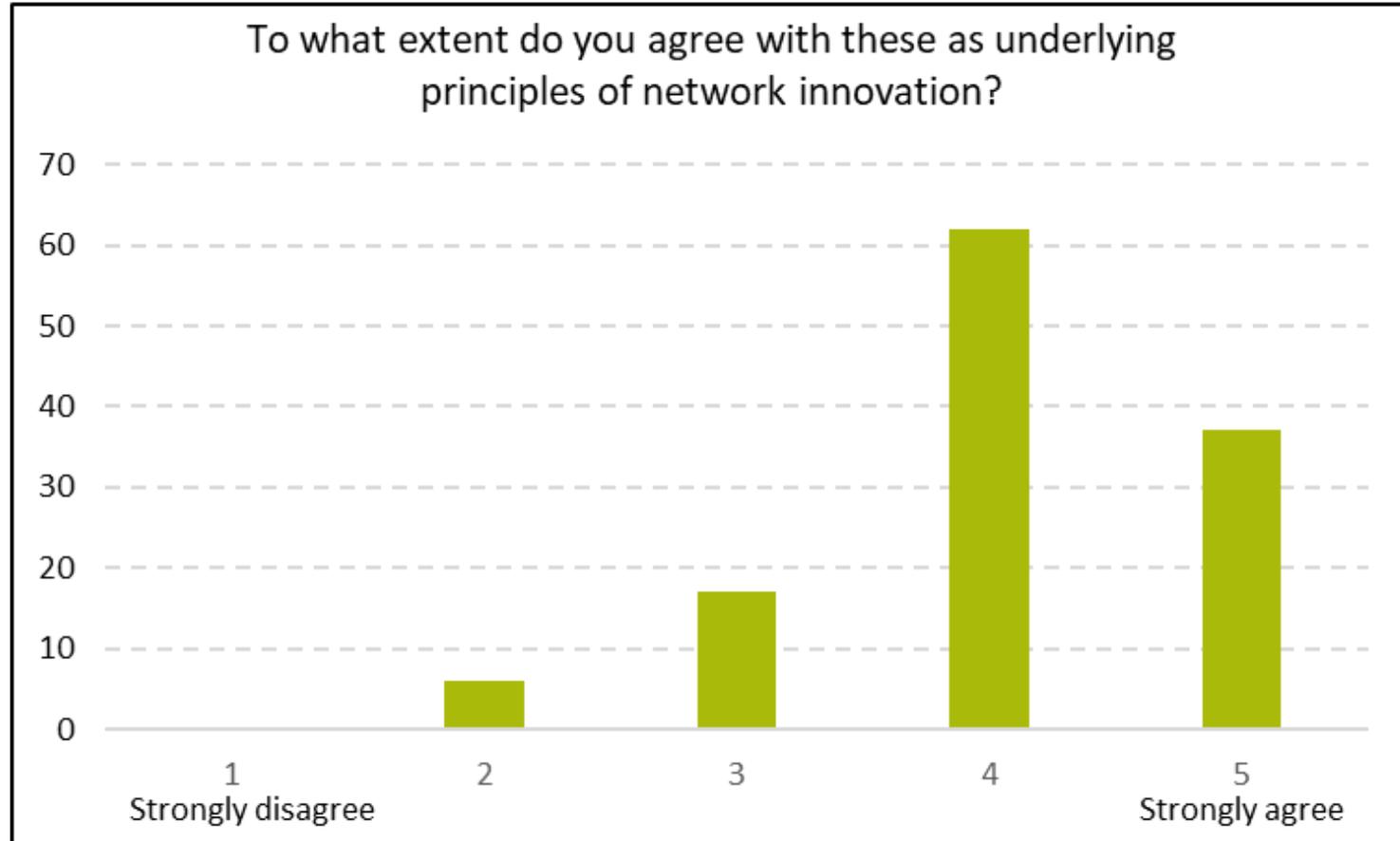
Underlying principles of innovation: Definition and high level consultation findings

Tamar Bourne, Senior Project Manager, Regen

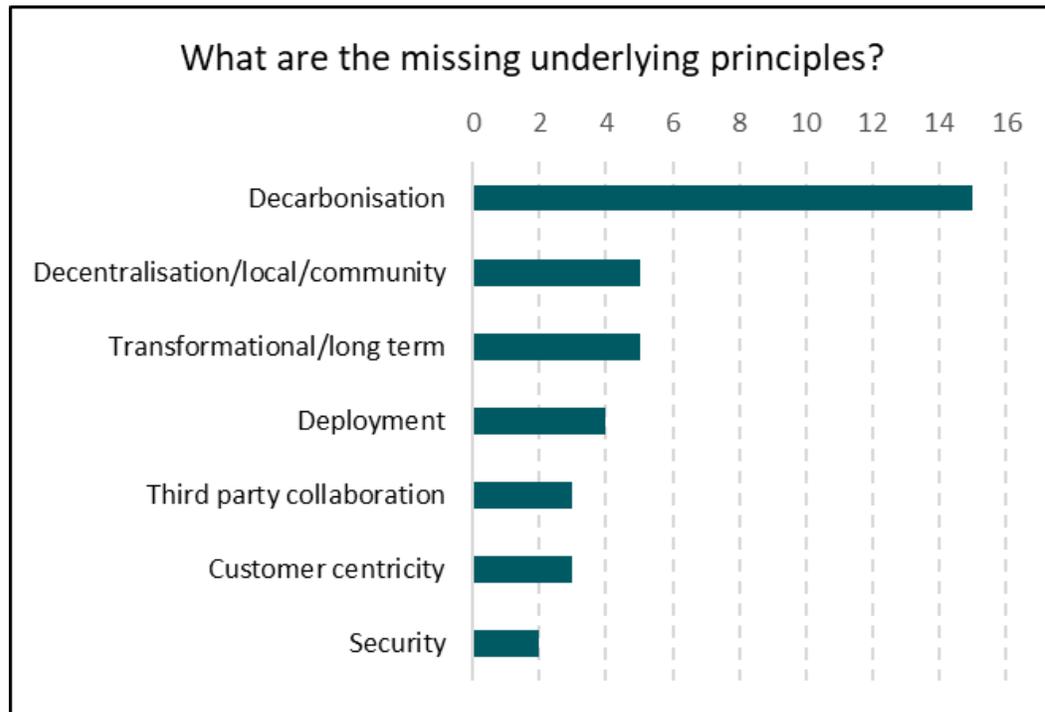
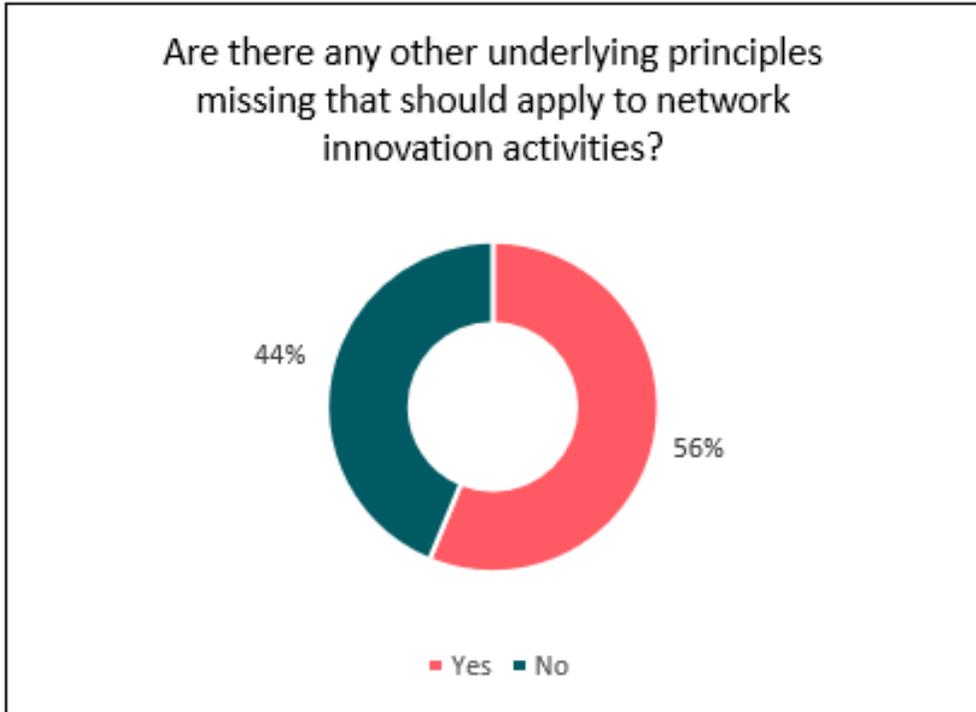
Consultation process – survey & webinars







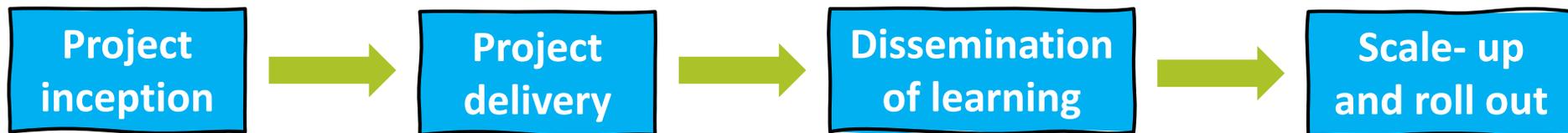
Principles and outcomes of network innovation



- Keep proposed principles and not introduce additional ones
- Decarbonisation not applicable to all network innovation, e.g. safety, customer service -> Incorporate as a key element of 'customer benefit' and will feature as a theme
- Incorporate feedback on what is missing into existing principles

Customer benefit:

Customer benefit should be at the centre of all network innovation activity. Benefits will range from efficiency savings and a better customer experience to societal benefits, such as accelerated decarbonisation of our energy system.



Collaboration:

Network innovation activity should provide shared learning, avoid duplication and increase collaboration between network companies and the wider energy sector. Network innovation should also be joined up with wider UK energy innovation programmes.



Data and outputs:

The outcomes of network innovation activity (e.g. data, findings, recommendations, new standards etc.) should be made available to all interested parties in a consistent and accessible format.

Scale-up and roll-out:

A key objective of network innovation activity should be to deliver transformational change, taking viable initiatives forward to business-as-usual deployment and to identify methods to scale-up / roll-out new practices, processes and technologies.



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Key themes for energy network innovation: Definition and high level consultation findings

Ray Arrell, Senior Project Manager, Regen

2018 network innovation themes



- Joining up to have a single shared set of themes for electricity and gas
- Consider whole energy system
- Policy context – Net Zero

2020 network innovation themes

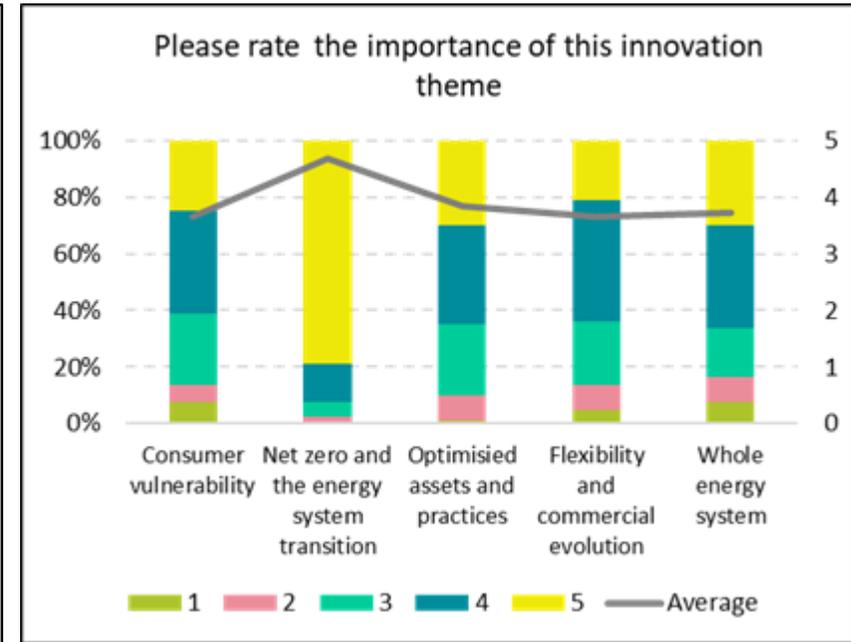
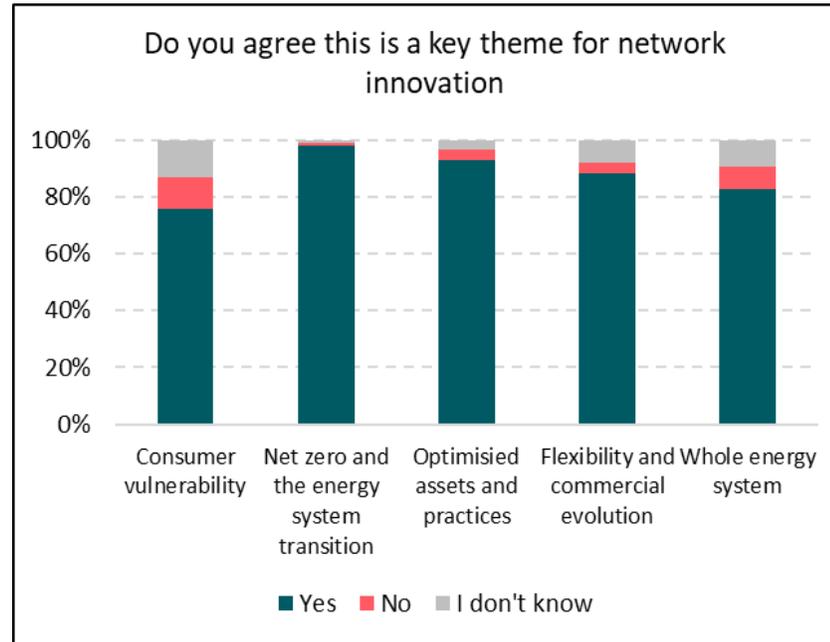
Consumer vulnerability

Net zero and the energy system transition

Optimised assets and practices

Flexibility and commercial evolution

Whole energy system



- Strong agreement that these are key themes for network innovation
- Net zero had the strongest support with **98%** of respondents agreeing it was key and rated as an average of **4.7 out of 5**
- We have adjusted how each innovation theme has been defined – **we'd like your feedback!**

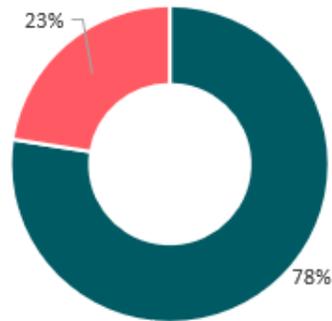
2020 network innovation themes



Consumer vulnerability

Exploring how best to support the needs of consumers in vulnerable circumstances and ensuring they experience the benefits of the energy transition.

Do you agree with how we have defined the consumer vulnerability theme?



■ Yes ■ No

- Need to consider the consumers of tomorrow as well as today
- Customer benefit should be a focus
- The transition should not leave anyone behind

Exploring how best to support the needs of consumers in vulnerable circumstances **today and in the future**, ensuring that everyone can experience the benefits of the energy transition **and nobody is adversely affected by changes.**

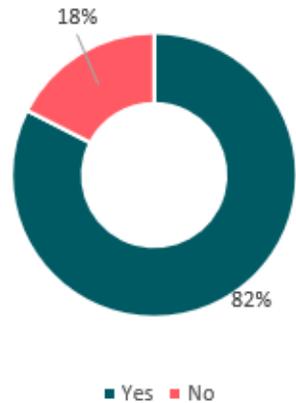
2020 network innovation themes



Net zero and the energy system transition

Facilitating and accelerating the UK's transition to net zero greenhouse gas emissions.

Do you agree with how we have defined the net zero and the energy system transition theme?



- Facilitating and accelerating the transition to net zero energy was identified as a key and specific role for networks
- Need to include a timescale on achieving net zero
- Other specific points around e.g. energy efficiency, collaboration, community energy support and life cycle analysis will be brought forward to drafting of the revised strategies

Facilitating and accelerating the UK's transition to net zero greenhouse gas emissions by 2050.

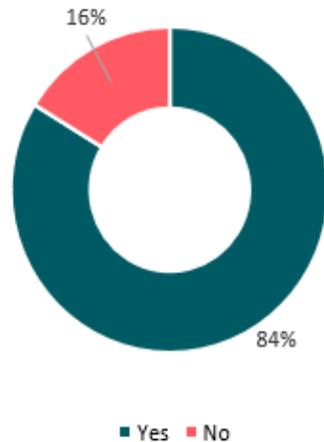
2020 network innovation themes



Optimised assets and practices

Developing state of the art techniques for optimising assets and practices that improve the resilience, reliability, safety, security, health and environmental impact of energy networks.

Do you agree with how we have defined the optimised assets and practices theme?



- “state of the art” not the right wording, as not all innovative solutions need to be novel or cutting edge
- Innovation should go beyond development to implementation
- This theme should centre around the capability of networks

Developing **and implementing industry leading** techniques for optimising assets and practices that improve the **capability**, resilience, reliability, safety, security, health and environmental impact of energy networks.

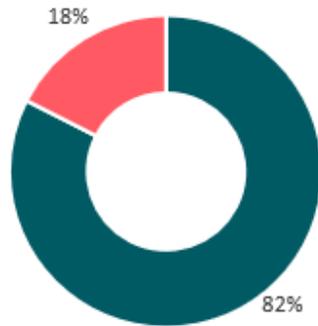
2020 network innovation themes



Flexibility and commercial evolution

Developing and testing both technological and commercial solutions to increasing the flexibility, efficiency and responsiveness of the energy networks.

Do you agree with how we have defined the flexibility and commercial evolution theme?



■ Yes ■ No

- Flexibility should benefit the wider energy system, not just the networks themselves
- Use of “responsiveness” not clear
- Commercial evolution should include more transparency and openness from network organisations

Developing and testing technological and commercial solutions to increasing the flexibility, **transparency** and efficiency of the energy system and enabling networks to be more responsive to change.

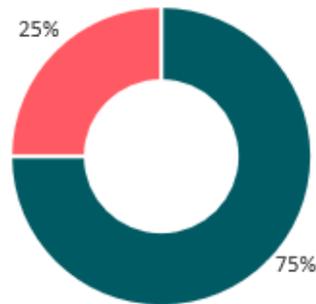
2020 network innovation themes



Whole energy system

Exploring joined up and efficient approaches between gas and electricity networks around planning, forecasting, operation and maintenance.

Do you agree with how we have defined the whole energy system theme?



■ Yes ■ No

- Not just about gas and electricity, should also be about transport, heat, hydrogen, buildings, cities etc.
- Should also include joined up approaches between energy transmission and distribution
- Exploring was considered too weak – should be enabling
- Question around relevance of gas networks in the long term

Enabling joined up and efficient approaches **across all areas of the energy system** for planning, forecasting, **design, construction**, operation, maintenance and **data**.

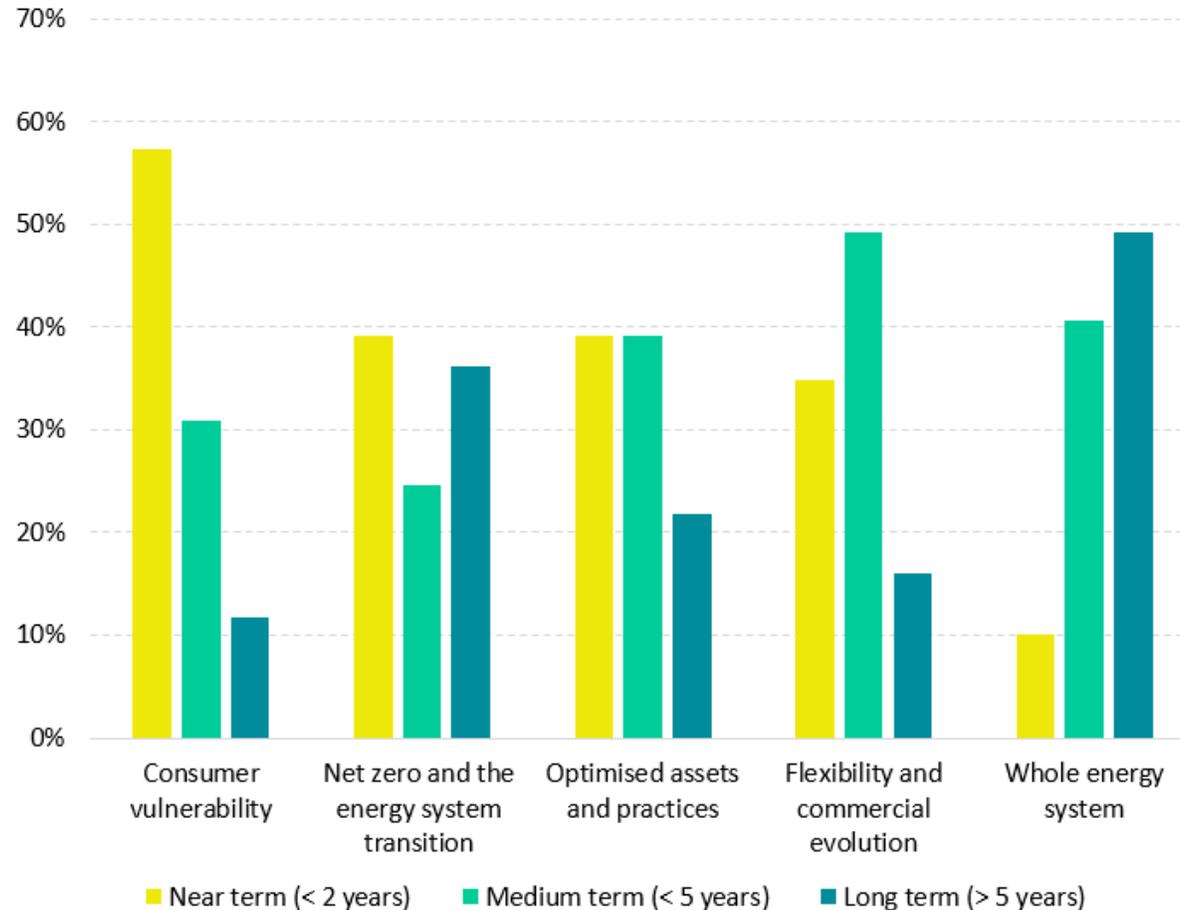
These include:

- Electricity and gas networks
- **Transmission and distribution networks**
- **Transport, heat, buildings and industry sectors**
- **Cities and regions**

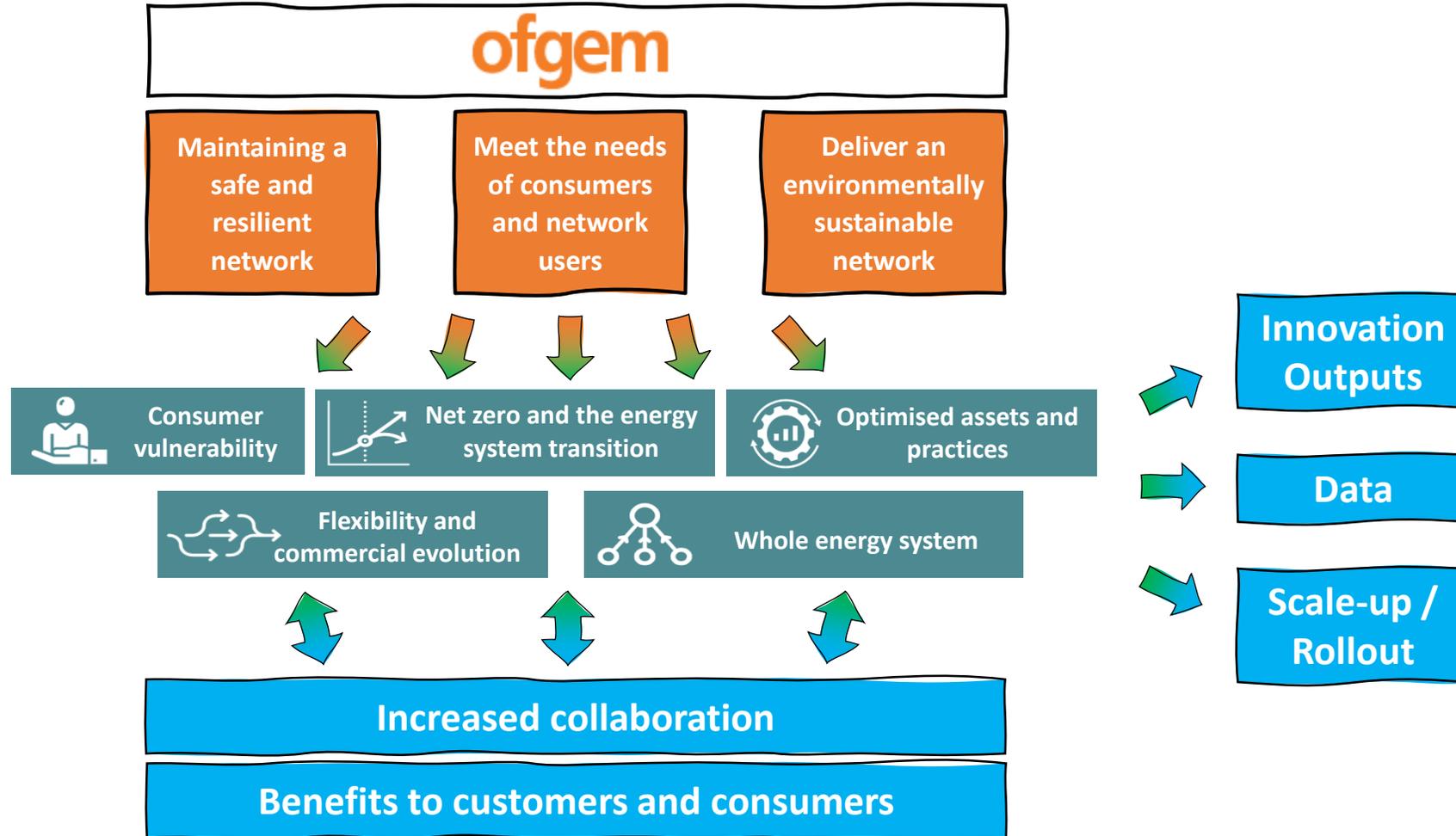
2020 network innovation themes

- 86% of survey respondents stated that it was useful to know whether the timeframes for innovation themes are short, medium or long term
- When asked what the timeframes should be for each theme, there were varying views
- Present near-term priorities and longer-term ambitions for every theme

Innovation timescales



2020 network innovation themes





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Reflections from network company perspective

John Richardson, Head of Innovation, SGN

Watson Peat, Lead Engineer, Future Networks, SP Energy Networks

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Questions | Discussion



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Network innovation theme - breakout discussions

Tamar Bourne and Ray Arrell, Senior Project Managers, Regen

Breakout discussion - Session 1



Consumer vulnerability

Exploring how best to support the needs of consumers in vulnerable circumstances today and in the future, ensuring that everyone can experience the benefits of the energy transition and nobody is adversely affected by change.

Electricity Network	Gas Network
Improve the support for customers that are vulnerable to supply interruptions	
Support the fuel poor and improve customer affordability	
Increase the visibility of vulnerable consumers	
Understand and remove barriers to adopting smart technologies and services for vulnerable customers	
Improve the customer experience for vulnerable consumers	

Breakout discussion - Session 1



Breakout discussion - Session 2



Net zero and the energy system transition

Facilitating and accelerating the UK's transition to net zero greenhouse gas emissions by 2050.

Electricity Network	Gas Network
Enable more renewable electricity generation	Enable the transition to low carbon heating
Facilitate and enable the electrification of heating and transport	Facilitate the supply of a wider range of gases
Facilitate the adoption of electricity storage	Actively develop hydrogen ready networks
Facilitate behavioural change through smart meters and energy efficiency	Support the adoption of further energy efficiency in homes and businesses

Breakout discussion - Session 2



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**Energy network innovation strategies:
Stakeholder workshop**

Lunch break

Please be back for 13:45 – thankyou

Breakout discussion - Session 3



Optimised assets and practices

Developing and implementing industry leading techniques for optimising assets and practices that improve the capability, resilience, reliability, safety, security, health and environmental impact of energy networks.

Electricity Network	Gas Network
Reduce and mitigate unplanned outages	Reduce and avoid unplanned supply interruptions and pressure issues
Improved visibility of connected consumers and generators and their behaviour	Develop solutions to tackle aging gas network assets and infrastructure
Industry leading standards for cyber security and data protection	
Industry leading standards for safety and health of workforce and the public	
Improved forecasting and network planning processes	

Breakout discussion - Session 3



Breakout discussion - Session 4



Flexibility and commercial evolution

Developing and testing technological and commercial solutions to increasing the flexibility, transparency and efficiency of the energy system, enabling information to be more open and networks to be more responsive to change.

Electricity Network	Gas Network
Develop flexibility services, markets, commercial arrangements and platforms	Enable and adopt more flexible connections
Trial and implement innovative commercial arrangements to support network management	Maximise the commercial opportunities for connecting green gas
Maximise the opportunities of smart meters, data and network charging reforms	Develop commercial market arrangements for delivering hydrogen

Breakout discussion - Session 4



Breakout discussion - Session 5



Whole energy system

Enabling joined up and efficient approaches across multiple aspects of the energy system around planning, forecasting, design, construction, operation, maintenance and data. These include:

- Electricity and gas networks
- Transmission and distribution networks
- Transport, heat, buildings and industry sectors
- Cities and regions

Electricity Network	Gas Network
Joined up approaches to regional network planning and forecasting	
Coordinated approach to energy system management and balancing	
Coordinated network maintenance and work scheduling	
Collaborate around the growth, operation and role of disruptive technologies (e.g. heat pumps, hybrid heating, bioenergy, ultra-low emission vehicles etc.)	
Coordinated planning between networks, local authorities and city regions	
Assess and implement cross vector / cross network commercial opportunities (Gas ↔ Electricity)	

Breakout discussion - Session 5



Next steps

- Feedback from today will be combined with our second engagement event in **London (22nd)** and a **webinar (24th)**
- Updated **Electricity & Gas Network Innovation Strategies** will be written in Feb/March and launched at the end of March by ENA
- Please share your feedback about today's event!**

Please give us your feedback on this event...

Innovation Strategies workshop: Glasgow

Name (optional)

Organisation (optional)

How would you rate today's event?

Very Good
 Good
 Satisfactory
 Not good

What was the most useful part of today?

Introduction, background and principles of network innovation
 Networking
 Network innovation themes- Ray Arrell
 Q&A, discussion and polls
 Network innovation theme breakout discussions

Other

Do you have any additional comments on the themes and focus areas that weren't captured in the breakout sessions?

What would you like to see at ENA and Regen events in the future?

Any other comments ...

Energy Networks Association

Energy network innovation strategies: Stakeholder workshop

Thank you for attending

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Ray - rarrell@regen.co.uk