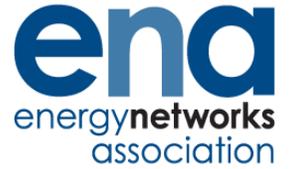


Energy Networks Association

Energy network innovation strategies: Stakeholder engagement workshop

22 January 2020, ENA, 4 More London Riverside, London

Welcome and agenda



10:00 Registration and networking

10:30 Welcome

Merlin Hyman, chief executive, Regen

10:35 Introduction, background and principles of network innovation

Matt Hindle, head of gas, 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

Jon Berry, innovation manager, WPD

Rob Mitchell, operations innovation manager, Cadent

Reflections from network company perspective

Q&A, discussion and poll



Welcome and agenda



- 12:00** Lunch break
- 12:45** Network innovation theme market stalls
Market stall session – attendees to spend 10 minutes at each market stall
- 14:15** Coffee
- 14:30** Feedback and voting
Feedback from market stall facilitators, followed by SLIDO vote and discussion
- 15:45** Close and next steps
- 16:00** End



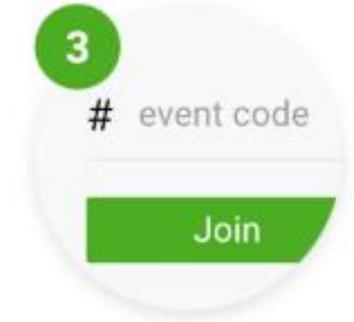
Voting using slido.com



Open browser



Go to slido.com



Enter event code

WiFi password: **R0ut3rEn3rgy!**

Event code: **#EnergyInnovationLondon**

slido

Test SLIDO poll!



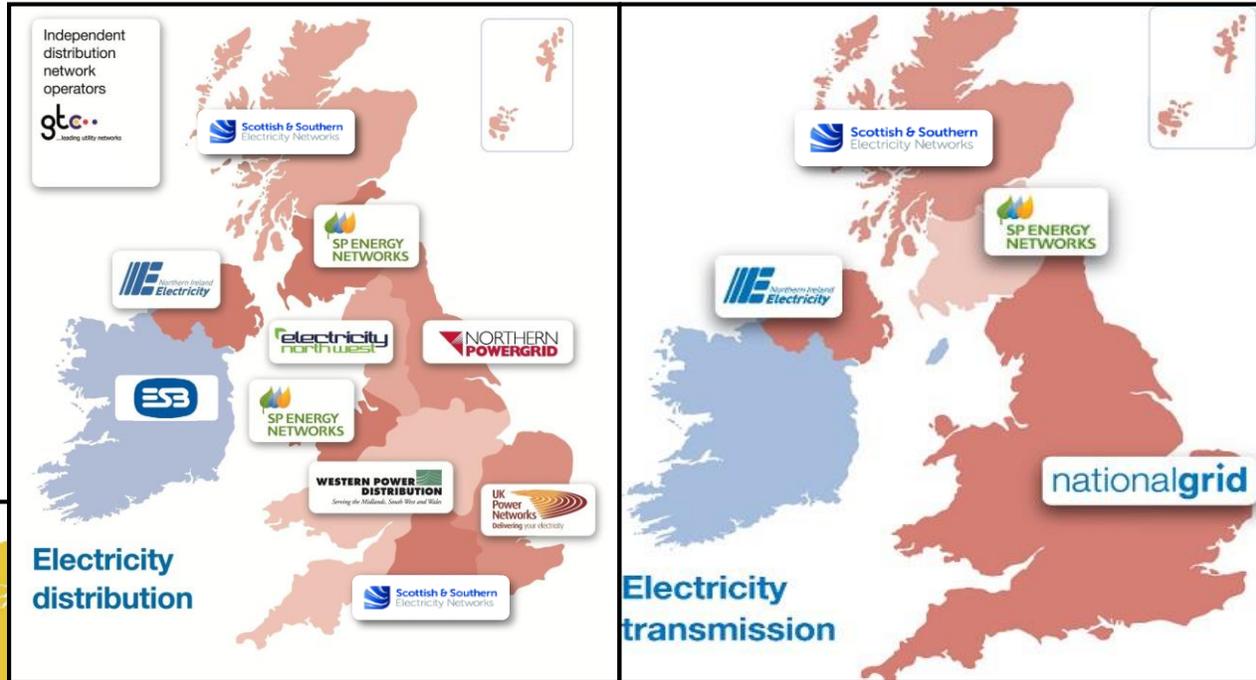
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Introduction and background to network innovation

Matt Hindle, head of gas, ENA

Introduction to ENA

- 29 million electricity customers
- 21.5 million gas customers



Gas Distribution



Gas Transmission



- 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

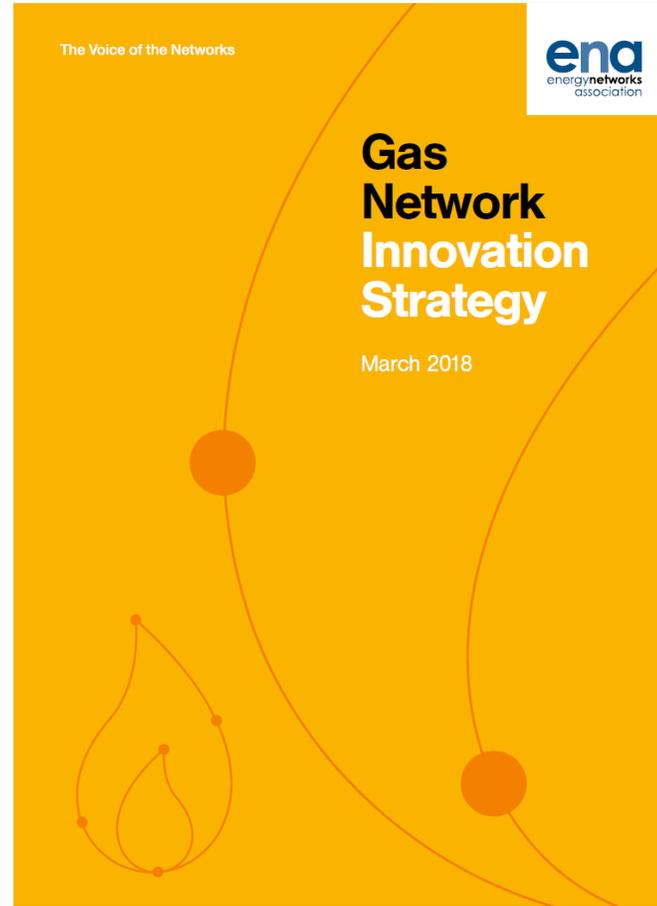
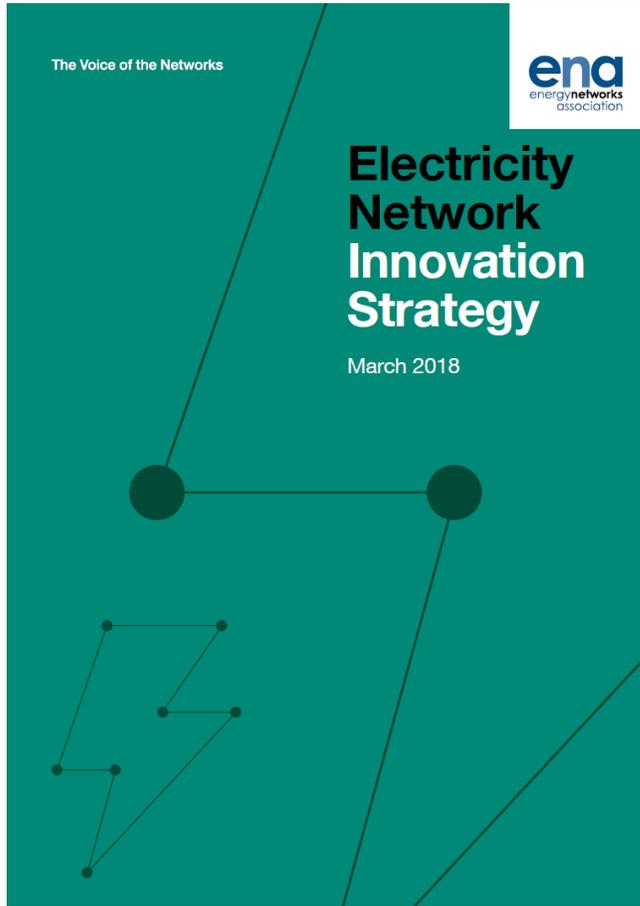
➤ Network Innovation Competition (NIC)

- 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

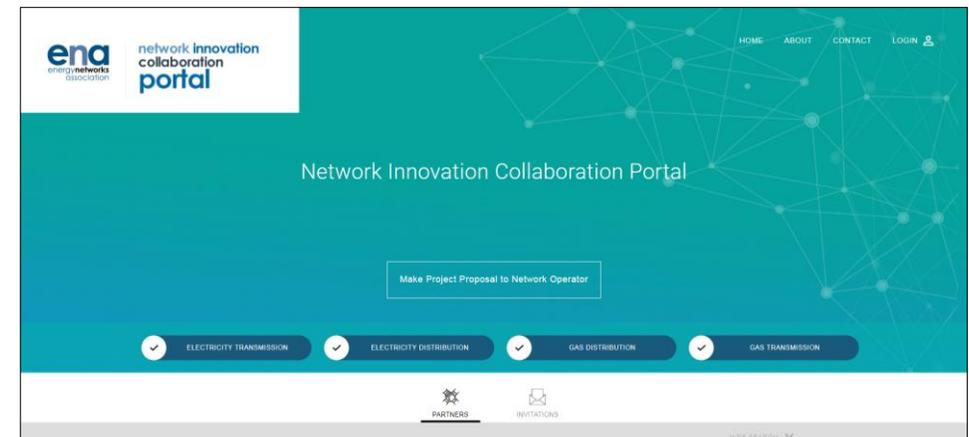
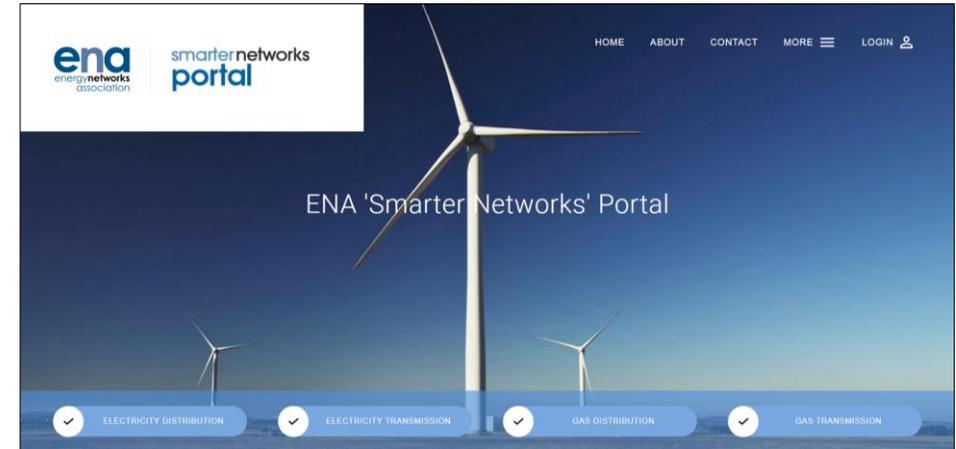
- Database of previous network innovation projects
- Over 1400 projects to date
- www.smarternetworks.org

➤ 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

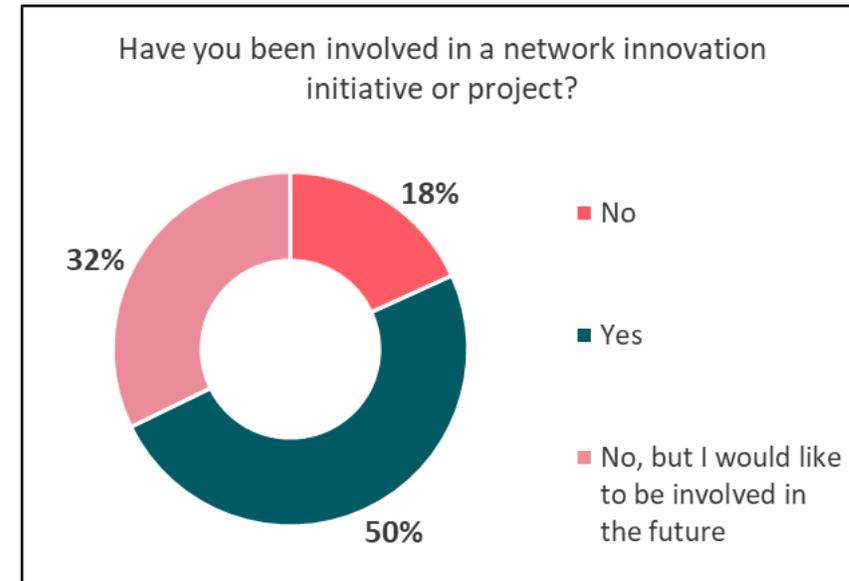
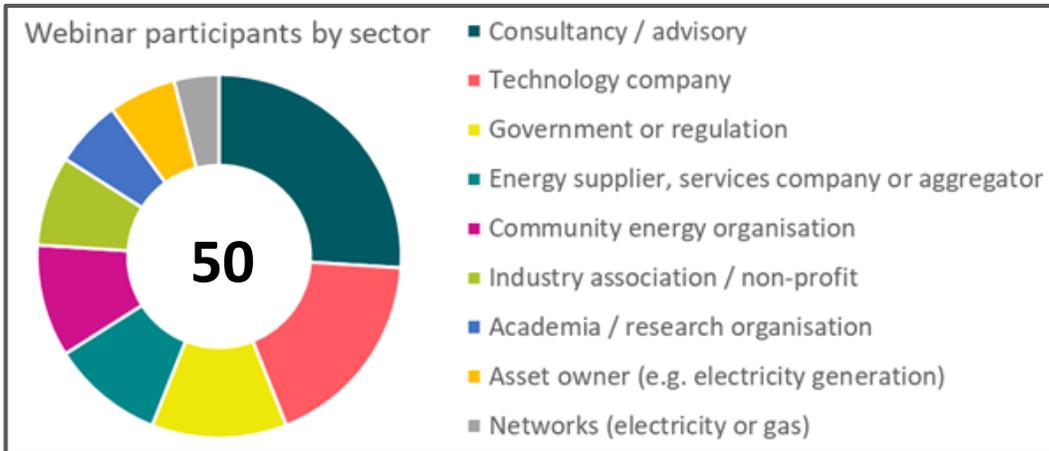
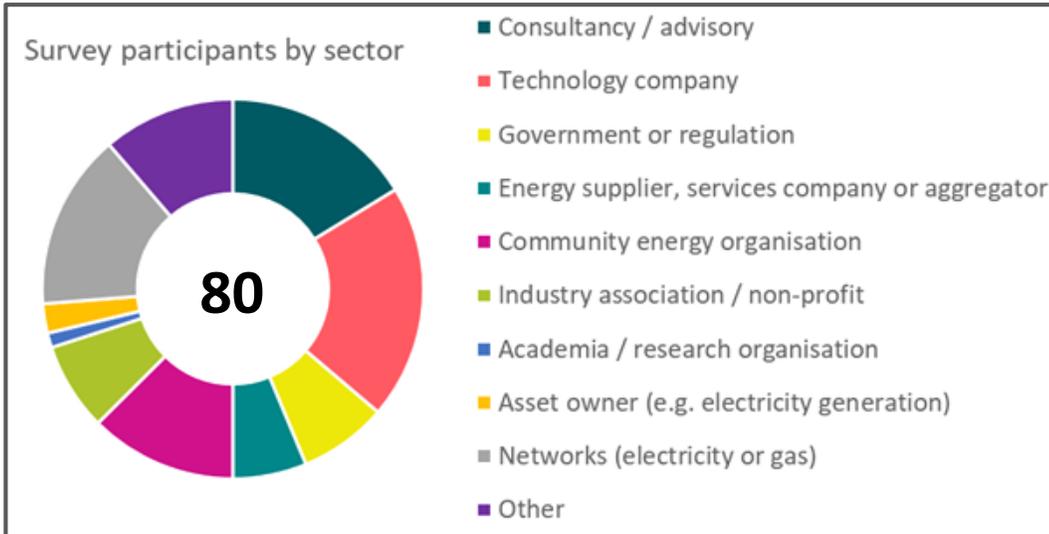


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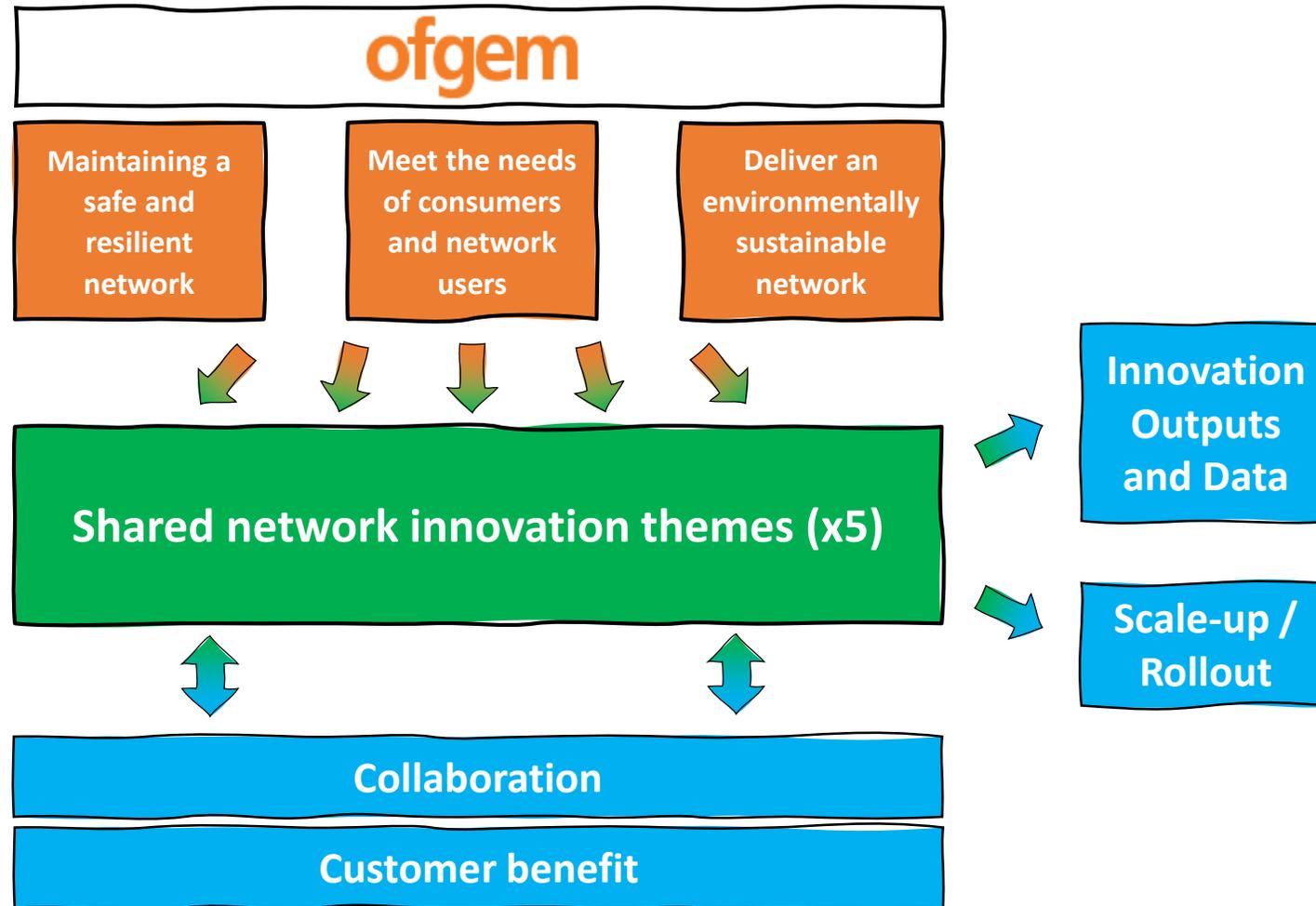
Underlying principles of innovation: Definition and high level consultation findings

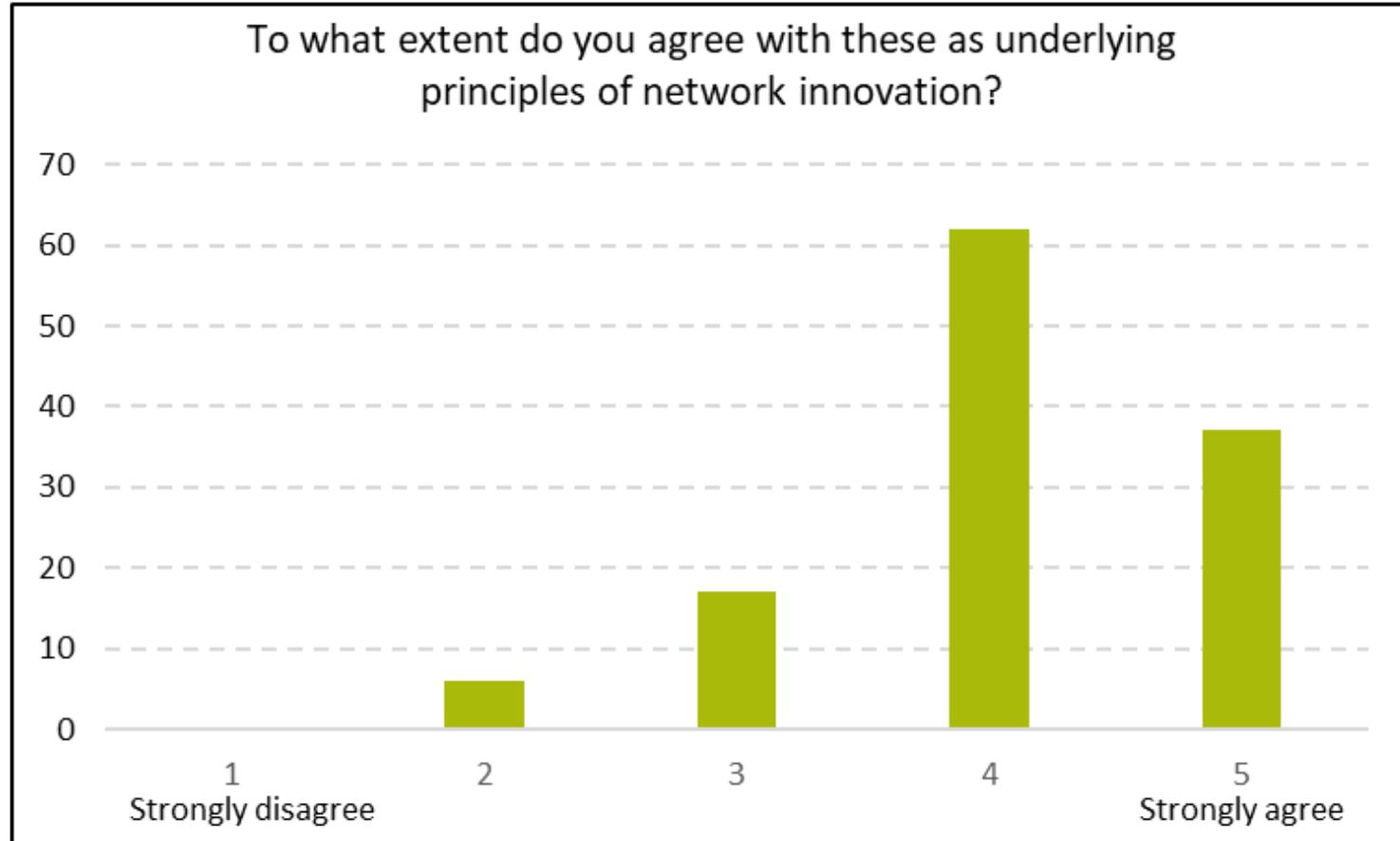
Tamar Bourne, Senior Project Manager, Regen

Consultation process – survey & webinars

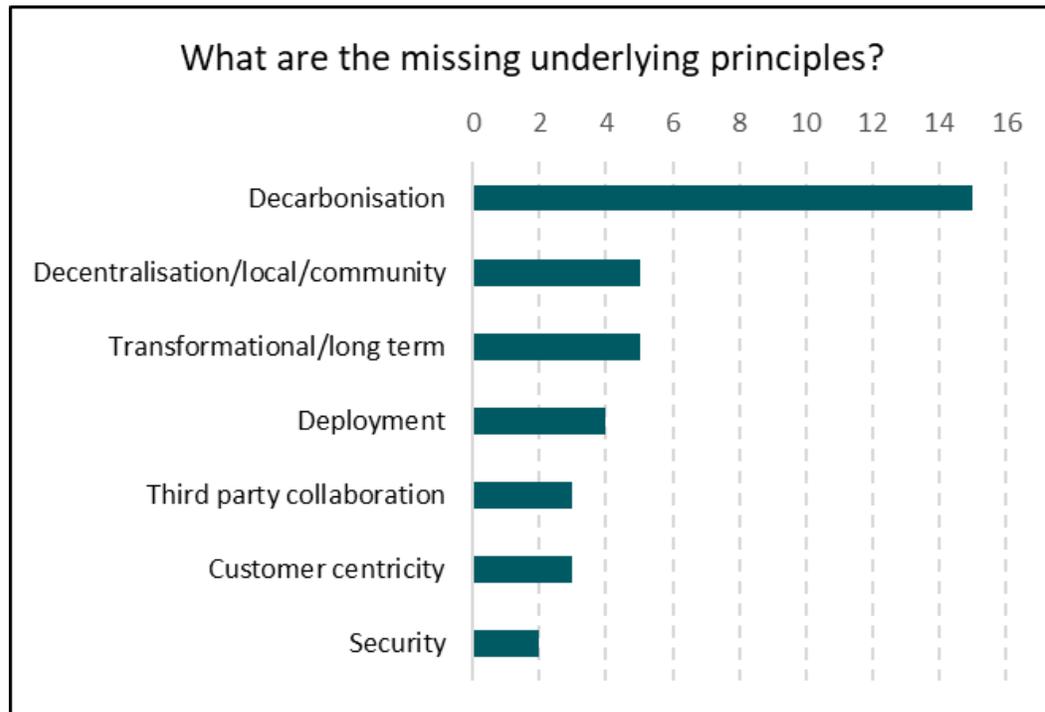
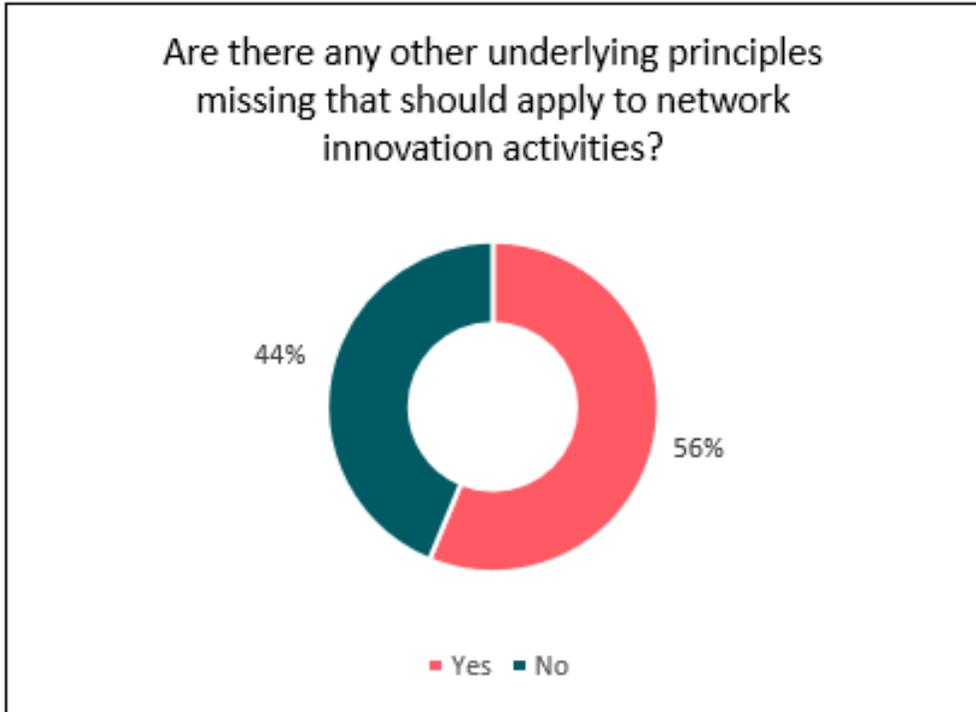


Principles and outcomes of network innovation





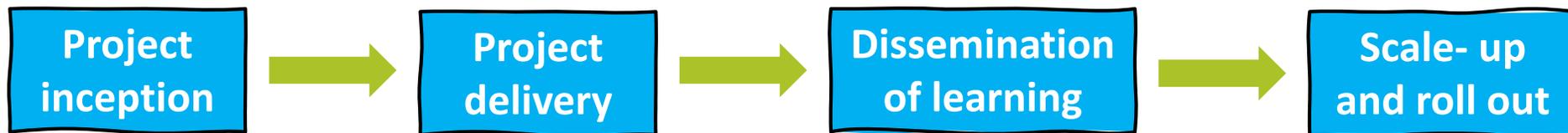
Principles and outcomes of network innovation



- 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

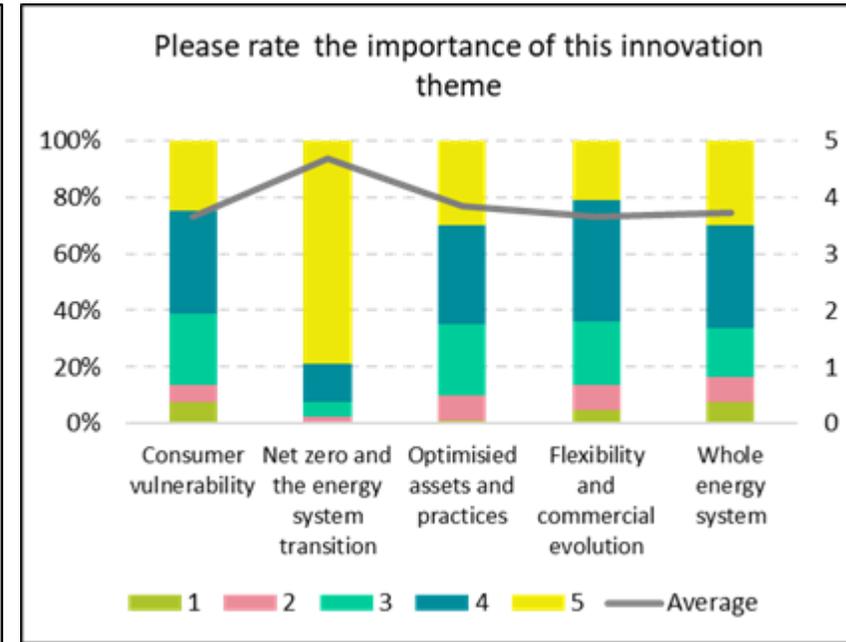
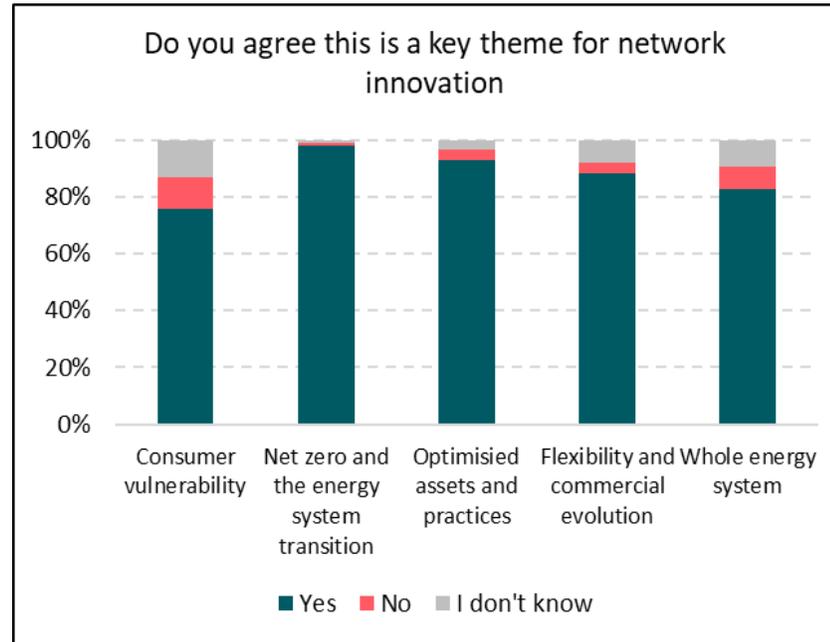
Consumer vulnerability

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!**

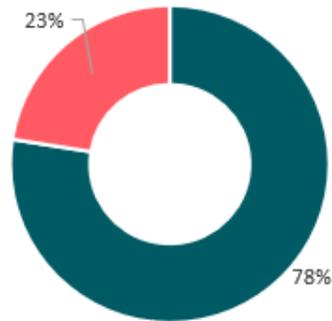
2020 network innovation themes



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.**

Innovation theme 1 – Focus areas



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 |
|---|-------------|
| Understand and remove barriers to adopting smart technologies and services for vulnerable customers | |
| Support the fuel poor and improve customer affordability | |
| Increase the visibility of vulnerable consumers to the networks and the networks to the vulnerable | |
| Co-operate and partner with other parts of industry and other utilities | |
| Improve and support for customers that are vulnerable to supply interruption | |

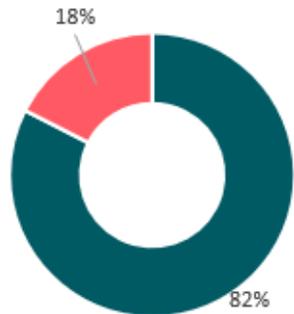
2020 network innovation themes



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?



■ Yes ■ No

- 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.

Innovation theme 2 – Focus areas



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 |
|---|---|
| Facilitate and enable the electrification of heat and transport | Enable the transition to low carbon heating and transport |
| Facilitate the adoption of flexibility and smart systems | Develop markets to support and enable the energy transition |
| Enable more renewable electricity generation | Actively develop hydrogen and green gas ready networks |
| Engage with carbon intensive industries | Ensure resilience and reliability through the transition |
| Ensure social justice in the energy transition | Facilitate the supply of wider range of gases |

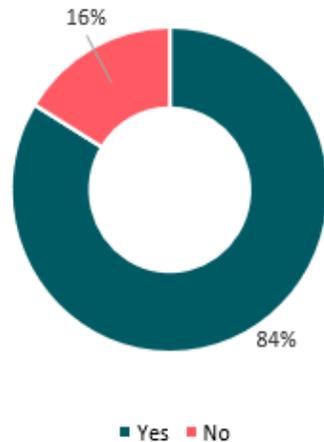
2020 network innovation themes



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.

Innovation theme 3 – Focus areas



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 and supply interruptions | Reduce and mitigate unplanned outages and supply interruptions |
| Maximise the use of assets | Accelerate gas pipe replacement |
| Improve the visibility of connected customers and generators and their behaviour | Improve forecasting and network planning processes |
| Enable digitalisation for optimisation | Reduce wider disruption from street works |
| Reduce wider disruptions | Reduce the impact on the environment |

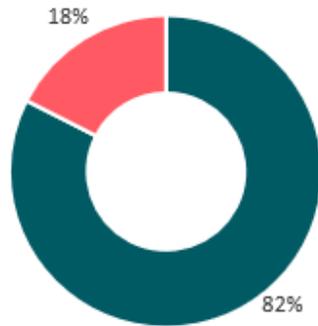
2020 network innovation themes



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.

Innovation theme 4 – Focus areas



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 |
|---|---|
| Trial and implement innovative arrangements to support network management | Develop commercial market arrangements for delivering hydrogen |
| Maximise the opportunities of smart meters, data and network charging reforms | Enable and adopt more flexible connections |
| Identify regulatory barriers and make recommendations for reform | Modernise billing methodology |
| Develop flexible connection arrangements and mechanisms for changing customer behaviour | Develop understanding of potential impacts of flexibility on gas networks |
| Enable domestic flexibility | Maximise the commercial opportunities for connecting green gas |

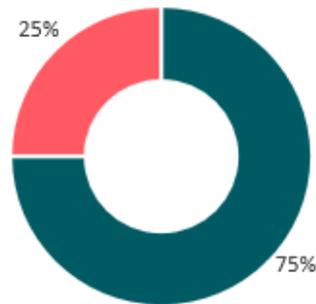
2020 network innovation themes



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**

Innovation theme 5 – Focus areas



Whole energy system

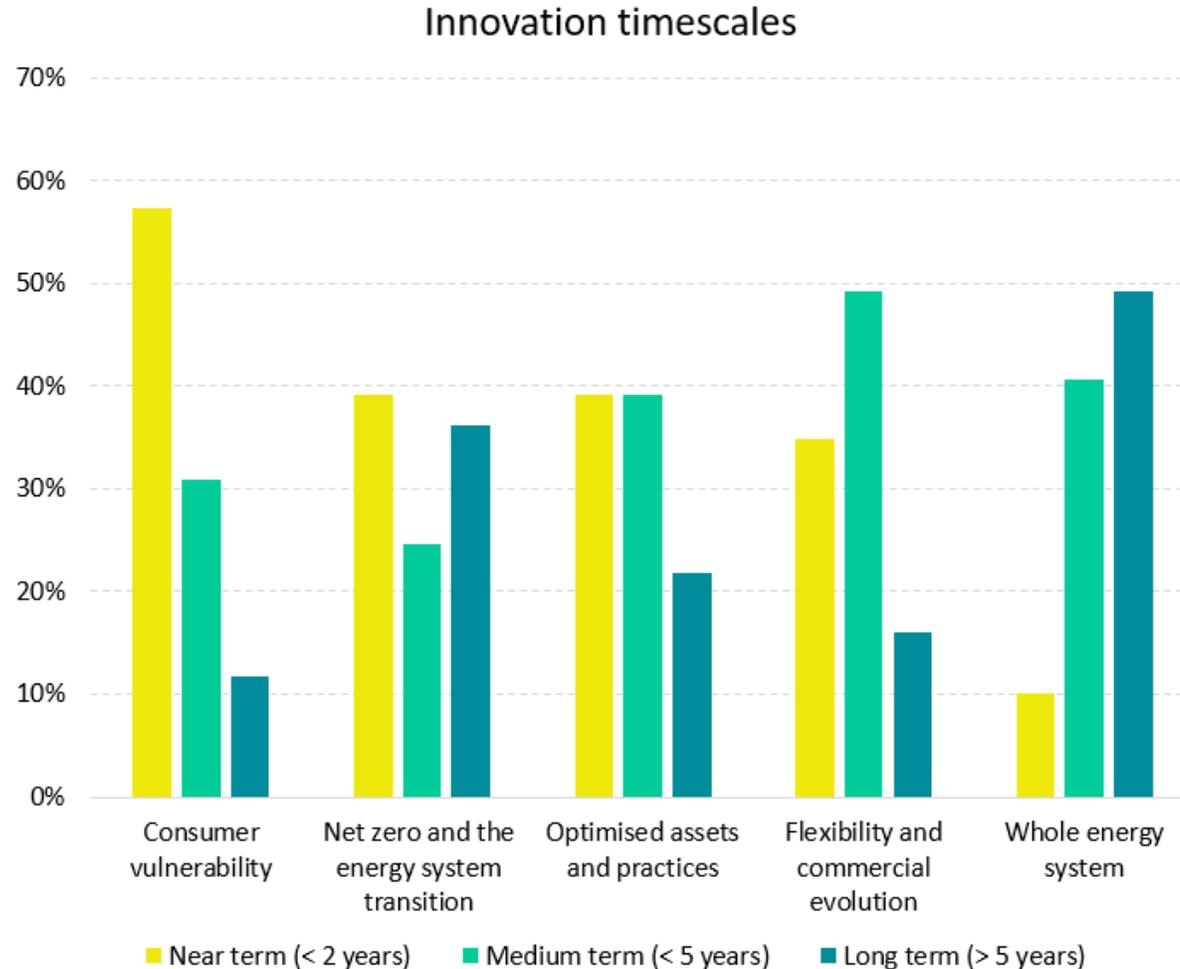
Enabling joined up and efficient approaches across multiple aspects of the energy system around planning, forecasting, design, construction, operation, maintenance and data. These include:

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

| Electricity Network | Gas Network |
|---|-------------|
| Join up approaches to regional network planning and forecasting | |
| Develop whole system co-ordinated cost benefit analysis | |
| Co-ordinate approaches to energy system management and balancing, including other utilities | |
| Assess and implement cross vector / cross network commercial opportunities (between gas and electricity) | |
| Collaborate around the growth, operation and role of disruptive technologies (e.g. heat pumps, hybrid, bioenergy and low emission vehicles) | |

Timescales for innovation

- 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



2020 network innovation themes



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Reflections from network company perspective

Jon Berry, innovation manager, WPD

Rob Mitchell, operations innovation manager, Cadent

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Questions | Discussion



Network innovation market stalls

- 1  Consumer vulnerability
- 2  Net zero and the energy system transition
- 3  Optimised assets and practices
- 4  Flexibility and commercial evolution
- 5  Whole energy system

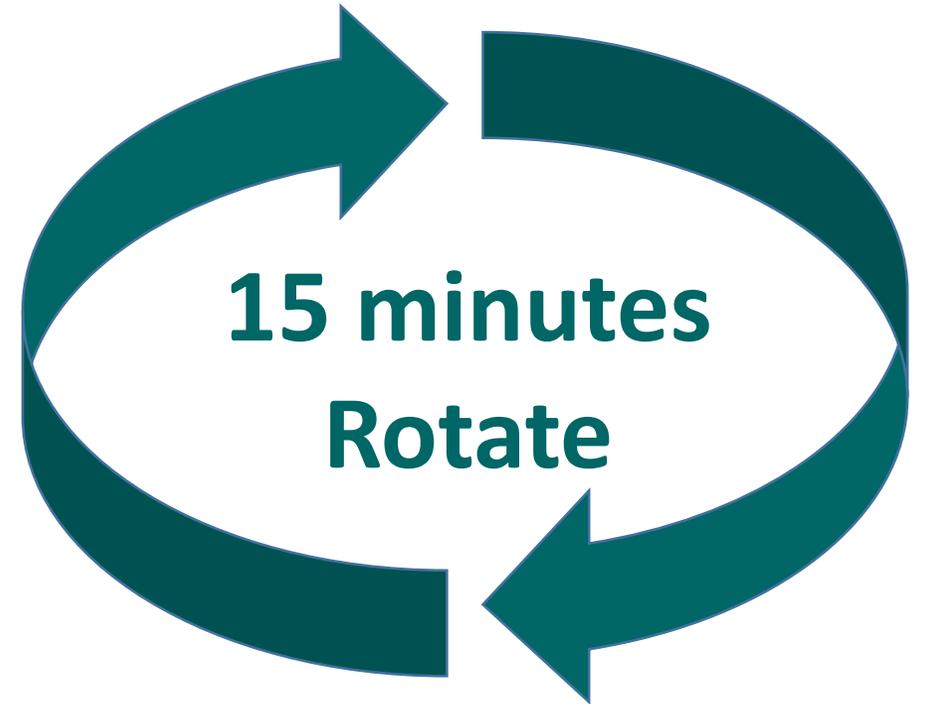
Main Room

Side Rooms

Side Rooms

Side Rooms

Main Room



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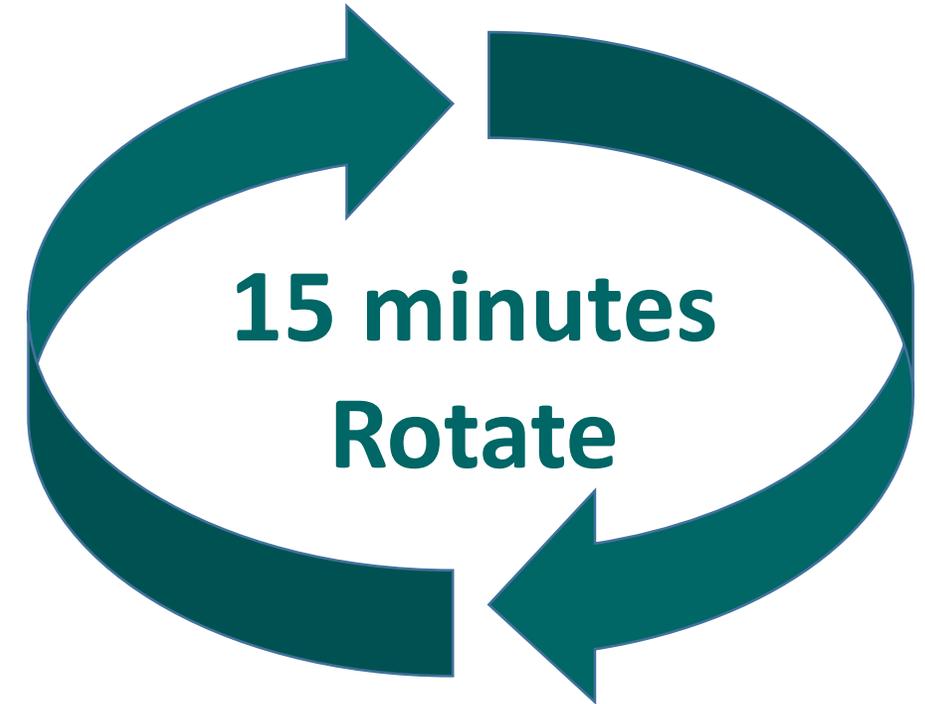
**Energy network innovation strategies:
Stakeholder workshop**

Lunch break

Please be back for 12:45 – thank you!

Network innovation market stalls

| | | | |
|---|---|---|------------|
| 1 |  | Consumer vulnerability | Main Room |
| 2 |  | Net zero and the energy system transition | Side Rooms |
| 3 |  | Optimised assets and practices | Side Rooms |
| 4 |  | Flexibility and commercial evolution | Side Rooms |
| 5 |  | Whole energy system | Main Room |



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**Energy network innovation strategies:
Stakeholder workshop**

Coffee break

Please be back for 14:30 – thank you!

Feedback and voting

1. **Consumer vulnerability – shared**
2. **Net zero and the energy transition – electricity**
3. **Net zero and the energy transition – gas**
4. **Optimised assets and practices – electricity**
5. **Optimised assets and practices – gas**
6. **Flexibility and commercial evolution – electricity**
7. **Flexibility and commercial evolution – gas**
8. **Whole energy system – shared**



Next steps

- Feedback from today will be combined with our first engagement workshop in **Glasgow (16th)** 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!**

Innovation Strategies workshop: London Innovation Strategies workshop: London

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 ...

Thank you!

Energy Networks Association

Energy network innovation strategies: Stakeholder workshop

Thank you for attending

Tamar - tbourne@regen.co.uk
Ray - rarrell@regen.co.uk