

nationalgrid



National Grid Electricity Transmission

Innovation Workshop





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Welcome

Housekeeping



Agenda

Welcome and introduction

With no boundaries, what do you think can be achieved?

Break

How does innovation work in RIIO-1?

What has and hasn't worked well?

What are the focus areas suggested by Ofgem?

What do you think we should focus on?

Lunch

How should we interact with our stakeholders?

How should we co-ordinate our innovation efforts?

What next?

Close

Safety Moment

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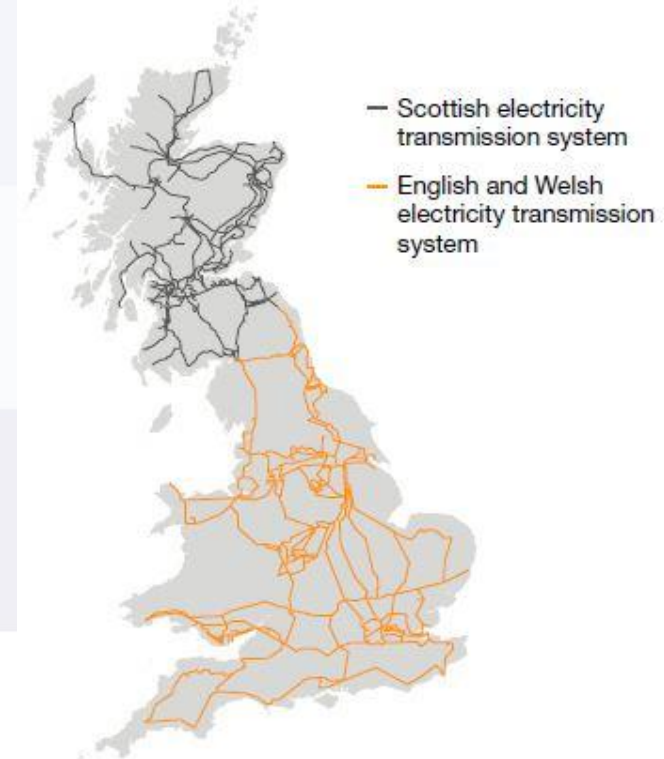


Introduction to National Grid

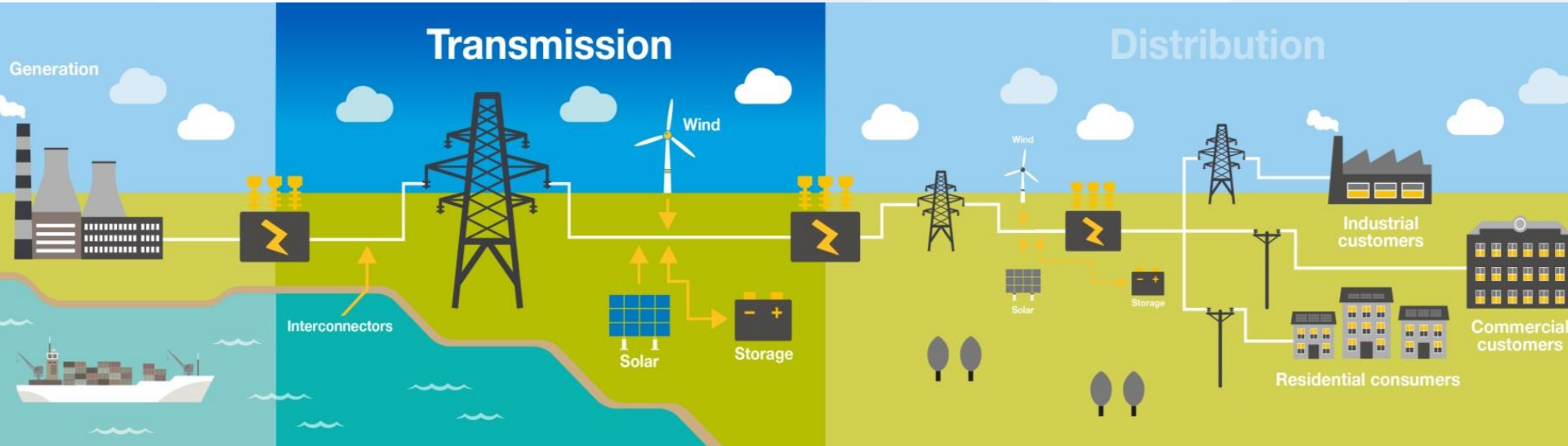
John Wilson

National Grid: what we do

- We are England & Wales Electricity Transmission (ET)
 - We own, build and maintain the network
- We are also the GB Electricity System Operator (ESO)
 - We balance the system and ensure that voltage and frequency are kept within acceptable limits
- Today's workshop is about Electricity Transmission
- The ESO will have its own regulatory framework for RIIO-2 and will be engaging on this separately

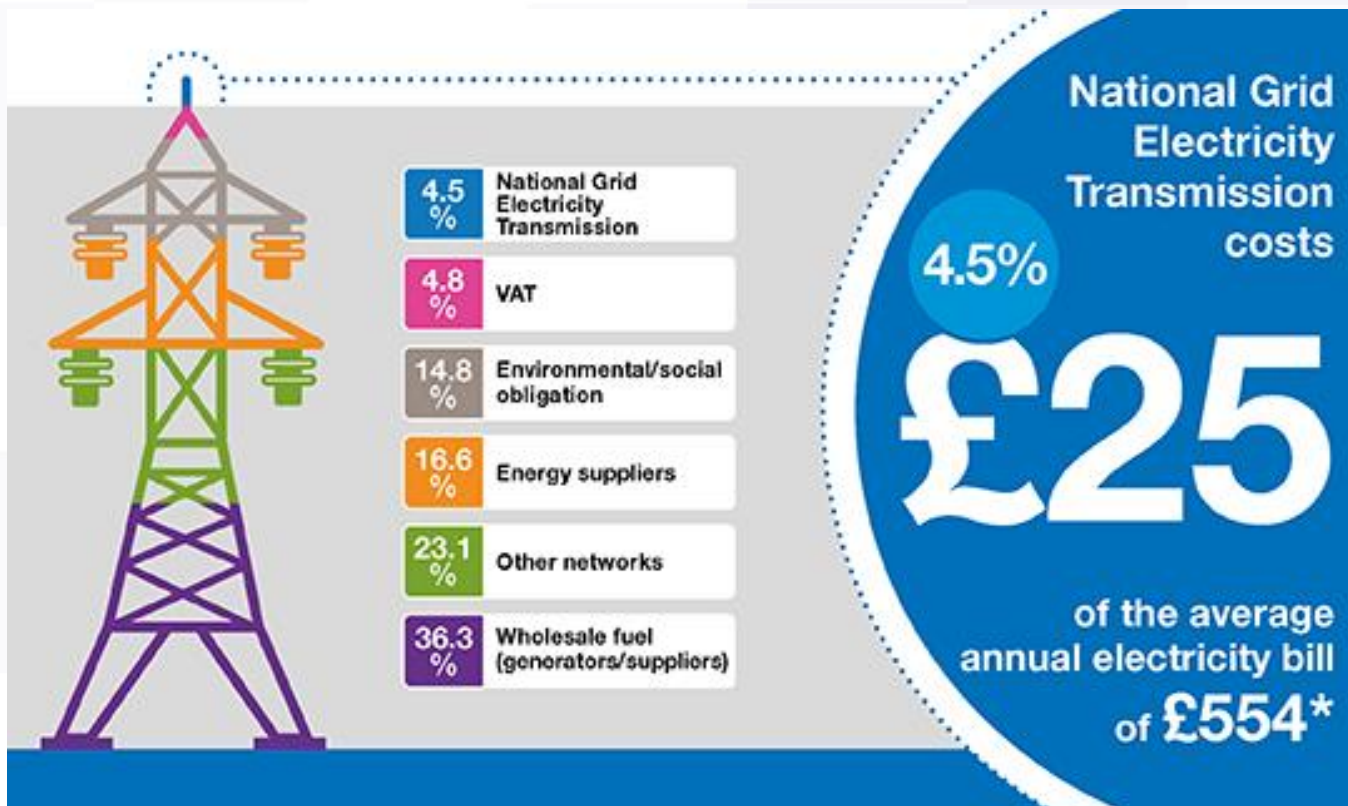


Electricity Transmission



- Our network operates at 400,000, 275,000 and 132,000 volts
- 45 power stations, 12 Distribution networks and 3 interconnectors are connected to our network, along with a few, large directly connected customers
- What we **don't** do:
 - Generate electricity in the UK
 - Own or operate UK electricity Distribution networks
 - Sell electricity to end consumers in the UK

Household bill impact: electricity



*2016/17 figures

How we're building our business plans with you

John Wilson

RIIO: the basics



Current RII0-T1 outputs



Safety



Reliability



The environment



Customer connections



Customer satisfaction

Ofgem's key themes for the RIIO-2 consultation



Ensuring fair returns



Responding to changes in how networks are used



Giving consumers/stakeholders a stronger voice

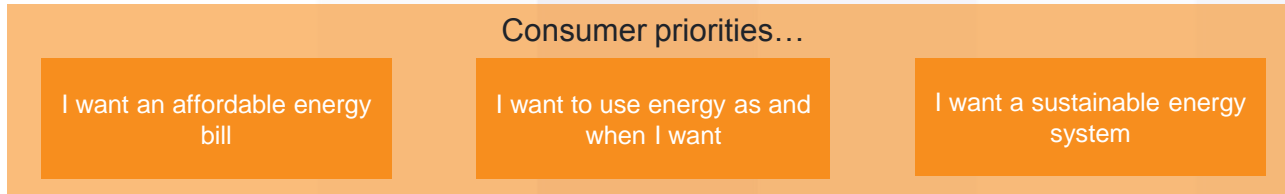


Driving innovation and efficiency

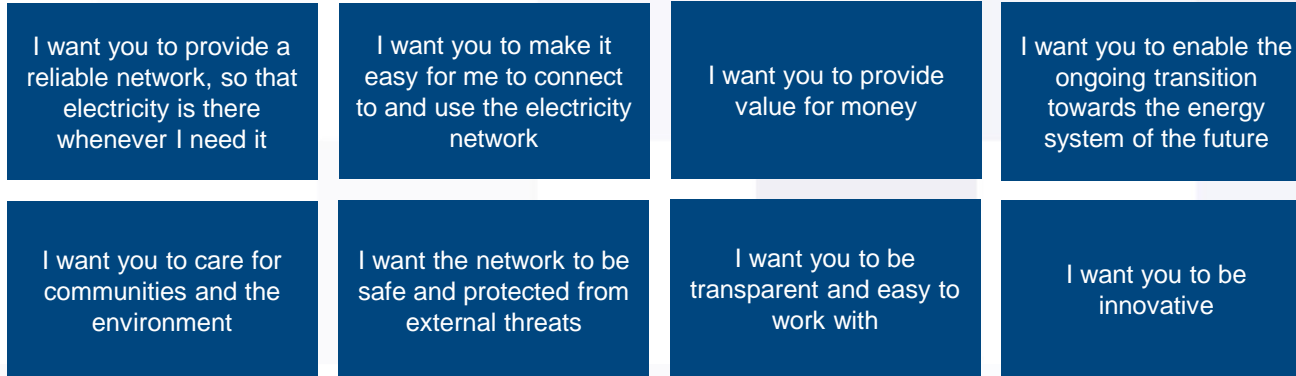


Simplifying the price control

We have listened....



...are delivered through our stakeholder priorities...



...these were developed by consulting with...



Our Stakeholder-led approach

1 Stakeholder Priorities

Listened to stakeholders to determine their priorities



2 Stakeholder engagement

Engage stakeholders to gather insights and build plan

External (co-create)



4 Submission / Publication

Online interactive suite of business plan and associated documents



3 Constructive Engagement

Challenge & review engagement approach and business plan

Stakeholder Group



Engagement topics

Other Topics

- Environment (28th June 2018) + Online Consultation
- Innovation (17th July 2018)
- Future of networks: Online Consultation w/c 23rd July for a minimum of three weeks.
- Security and resilience: online (July-August)
- Reliability: workshop, mid September
- Communities: details to be confirmed
- Connections and customer service: Workshop late September/early October

Today's approach

- The principle is that we talk for a bit, then you talk for a lot (and we listen)
- We won't assume we know everything you're interested in (car park)
- There'll be chances to tell us if there's something else you'd like to talk about
- And please leave your feedback at the end

Collecting your feedback

Julie Cook

First a quick test...

- *What was your main mode of transport this morning?*
 1. Train
 2. Car
 3. Motorbike
 4. Bus
 5. On foot
 6. Bicycle
 7. Plane
 8. Something else
 9. None of your business!

What was your main mode of transport this morning?



And to help us analyse your answers...

- *Which of the following best describes you / your organisation regarding your role here today?*
 1. Customer, i.e. your organisation pays National Grid directly
 2. Consumer interest organisation
 3. Regulator or government (central or local)
 4. Energy network owner or operator
 5. University, think tank or academic
 6. Supply chain
 7. Environmental interest organisation
 8. Other energy industry
 9. Other non-energy industry

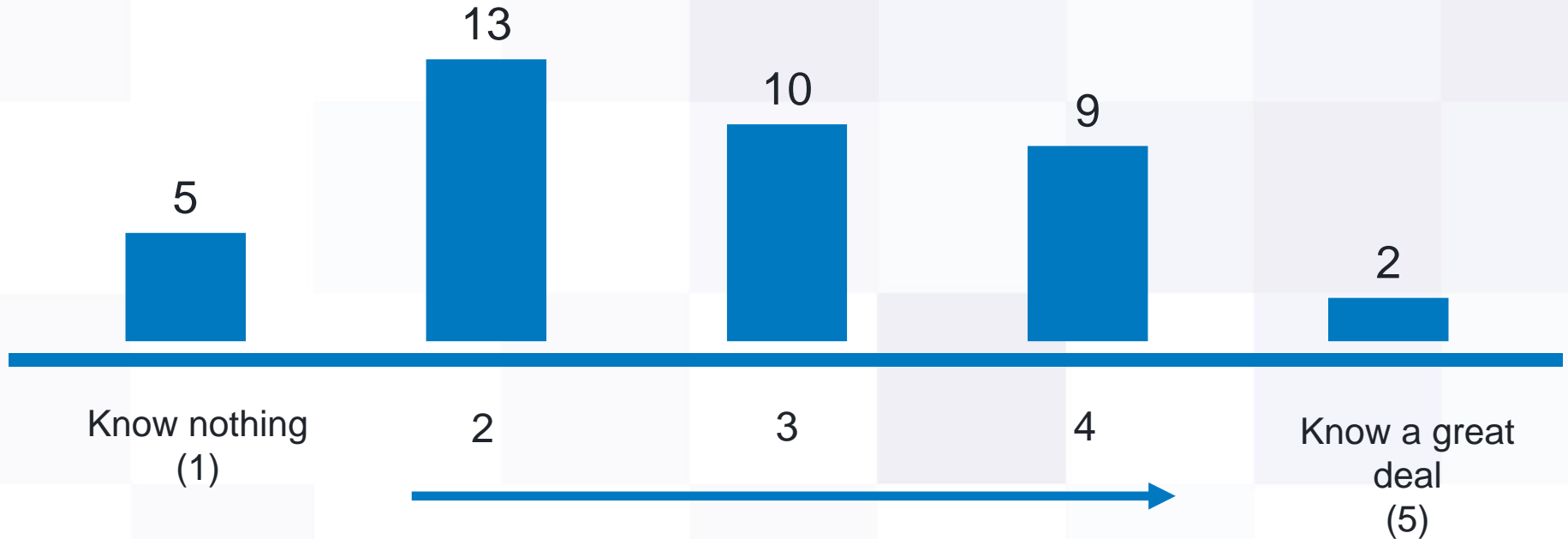
Which of the following best describes you / your organisation regarding your role here today?

1. Customer, i.e. your organisation pays National Grid directly
1
2. Consumer interest organisation
0
3. Regulator or government (central or local)
0
4. Energy network owner or operator
3
5. University, think tank or academic
6
6. Supply chain
20
7. Environmental interest organisation
0
8. Other energy industry
7
9. Other non-energy industry
2

Knowledge of Electricity Transmission innovation

- *On a scale of 1 to 5, where 1 is know nothing and 5 is know a great deal, how much would you say you know about National Grid's electricity transmission innovation?*
 1. Know nothing
 - 2.
 - 3.
 - 4.
 5. Know a great deal

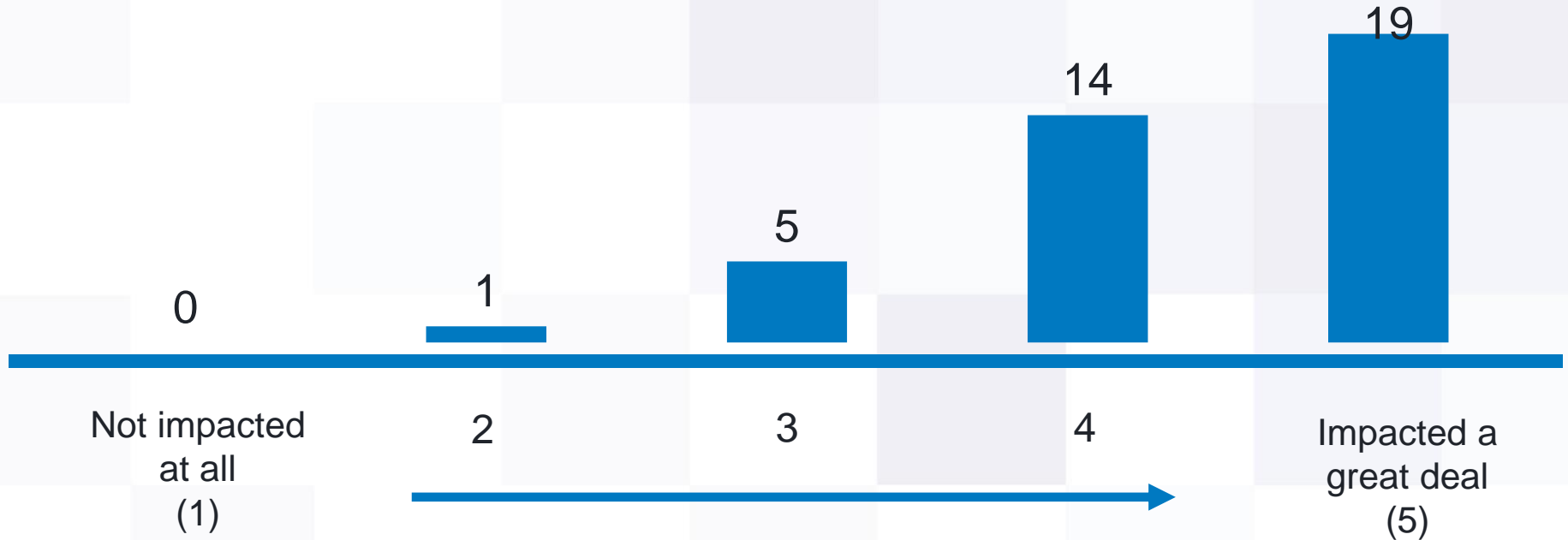
On a scale of 1 to 5, where 1 is know nothing and 5 is know a great deal, how much would you say you know about National Grid's electricity transmission innovation?



Our impact on you

- *On a scale of 1 to 5, where 1 is not impacted at all and 5 is impacted a great deal, how impacted are you (or those you represent) by the topic of Innovation?*
 1. Not impacted at all
 - 2.
 - 3.
 - 4.
 5. Impacted a great deal

On a scale of 1 to 5, where 1 is not impacted at all and 5 is impacted a great deal, how impacted are you (or those you represent) by the topic of Innovation?

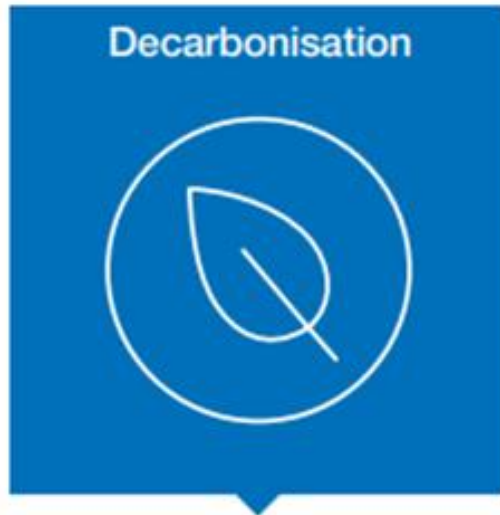


Future Energy Landscape

Ursula Bryan

The components of the energy landscape are changing

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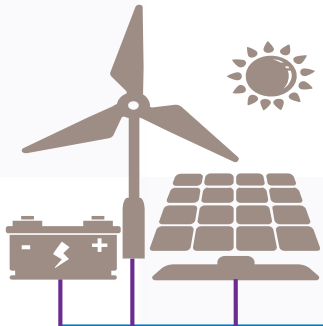
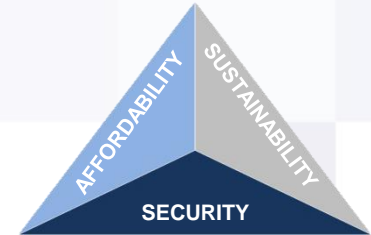


The changing energy landscape

Our Energy Landscape

The energy sector is undergoing a significant transition

Political, economic, societal and technological trends impact the way in which we produce and consume energy



Innovation drives change in behaviours

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What should our innovation ambition be?

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Most new cars must be electric by 2030, ministers told

By Roger Harrabin
BBC environment analyst

17 January 2018

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By Roger Harrabin
BBC environment analyst

21 May 2018

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Survey: Half of young people want electric cars

By Roger Harrabin
BBC environment analyst

12 July 2018

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Discussion questions

- What do you think we should be focussing our innovation on in the future?
- What should be our top 3 focus areas?
 - Think long term, beyond RIIO-2 (2026)
 - No limitations
- How will consumers benefit?
- And how we should be doing this?



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Feedback

The background features a decorative grid of squares in various shades of blue, including light blue, medium blue, and dark blue. The squares are arranged in a non-uniform pattern, with some squares missing, creating a fragmented, grid-like appearance. The word "nationalgrid" is positioned in the upper right area of the image.

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Voting

Question 1

- *Should utilities be incentivised to innovate on projects that potentially deliver value...*
 1. Within the current regulatory period
 2. In future regulatory periods
 3. Both of the above

Should utilities be incentivised to innovate on projects that potentially deliver value...

1. Within the current regulatory period

3

2. In future regulatory periods

4

3. Both of the above

31

Question 2

- *Do you believe network utilities are investing sufficient resource in innovation activities?*
 1. Yes
 2. No
 3. Don't know

Do you believe network utilities are investing sufficient resource in innovation activities?

1. Yes



2. No



3. Don't know



Question 3

In a truly competitive market for transmission, what do you think a network company should prioritise?

1. Delivering value to their existing customer base
2. Delivering short-term value to their shareholders
3. Developing new products and services for existing customers
4. Growing their customer base
5. Delivering long-term value to their shareholders
6. High-risk, disruptive innovation
7. Meeting government targets

Press your first ranking now

And second priority...

In a truly competitive market for transmission, what do you think a network company should prioritise?

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And third priority...

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And fourth priority...

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And fifth priority...

In a truly competitive market for transmission, what do you think a network company should prioritise?

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And sixth priority...

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Voting Result

In a truly competitive market for transmission, what do you think a network company should prioritise?

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6. High-risk, disruptive innovation
7. Meeting government targets



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Break

Results

In a truly competitive market for transmission, what do you think a network company should prioritise?

1. Delivering value to their existing customer base
2. Developing new products and services for existing customers
3. Meeting government targets
4. Delivering long-term value to their shareholders
5. Growing their customer base
6. High-risk, disruptive innovation
7. Delivering short-term value to their shareholders



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Voting

Which of these topic areas would you prioritise?

1. Whole System – be open to more third party involvement & incentives, consumer involvement. Better smart meters, future scenarios
2. Dynamic and Flexible – speed of innovation, internal policy
3. Balance of risk – incentive for others not just NGET
4. Disruption – sharing data, analytics, better asset management technology
5. Environment/Carbon Impact
6. Storage - Batteries

Innovation in T1

- Current framework
- How much does it cost consumers?
- How much does it benefit consumers?
- Innovation results

We have 3 innovation mechanisms in T1

ofgem
RIIO | T1

Network
Innovation
Allowance

Network
Innovation
Competition

Innovation
Roll-out
Mechanism

Potential for Direct
Impact on the Network

- New equipment (including software) or
- Novel application existing equipment or practice or
- Novel commercial arrangement

The Allowances

0.7% turnover 90% Cost Recovery

Potential to deliver
benefits to the customer

Potential to
develop learning

Avoids duplication

The Competition

£70m available max 90% Recovery

Network Innovation Allowance

What went well...



- Nearly £1bn benefits delivered

Life extension of a range of protection relays

£57m

Factors affecting life expectancy of SGTs

£76m

Online PD and CM tools

£25m

Analysis of Grade 4 steelworks

£100m

- Large & diverse portfolio
- Driving innovation culture throughout the organisation

What not so well...



- Use it or lose
- Management of IP
- Uncertainty after 2021
- Capability for academic support
- Governance requirements
- Resourcing implementation
- Resourcing internal work
- Digitilisation programme

Network Innovation Competition

What went well...

- Increased upfront collaboration between partners
- New, ambitious projects
- Competitive environment



What not so well...

- Competitive process
- Implementation
- Governance process



Innovation Rollout Mechanism

What went well...

- Unsure (Used once by SPEN)



What not so well...

- Only two re-openers
- Uncertainty over barriers to adoption



Introducing the RIIO-2 Framework Consultation

John Wilson

The Framework Consultation has 7 key innovation focus areas for RIIO-2

It may now be appropriate to re-focus support towards larger-scale, 'whole-system' orientated projects.

1

Companies will share more risk

The balance of risk should be more heavily weighted towards the company and not the consumer

2

Stronger incentives in place

There should be stronger incentives on network companies to meet the future challenges

3

Rewards good performance

Network companies should be rewarded for great innovation performance

It is important to show RIIO-1 worked and we have RIIO-2 plans to improve

4



Demonstrate long-term value to consumers

- System Operability
- Whole System Coordination
- Decarbonisation

5

Enabling increased third party engagement



6



Drive the transition to BAU using the incentives framework

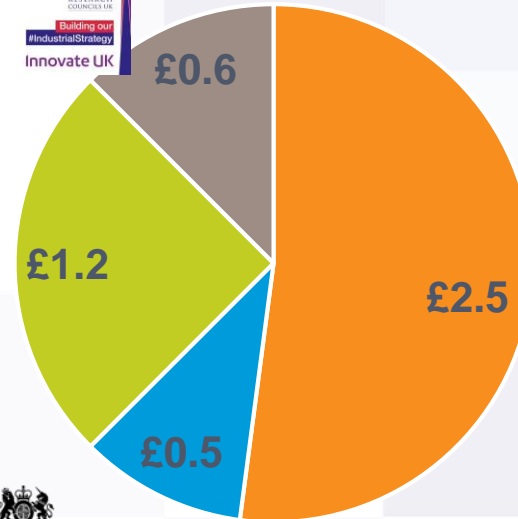
- Setting allowances for some activities over a longer timescale to enable greater flexibility

There is a drive to get greater co-ordination with external funding streams

7



Innovation Schemes (£4.8bn)



UK Research and Innovation



- Low Carbon Innovation Research
- BEIS Energy Innovation Programme
- UK Research & Innovation
- Industrial Strategy Challenge Fund



Department for Business, Energy & Industrial Strategy

Summary of 7 key Focus Areas

1. Network companies taking a greater share of the risk
2. Stronger incentives to innovate
3. Greater reward for innovation performance
4. Focus on long-term value for customers (system operability, decarbonisation, digitisation)
5. Enable greater third party involvement
6. Drive the transition to business as usual
7. Enable co-ordination with wider public sector funding.

Discussion

Discussion questions

- Discuss what are your initial thoughts on these priority areas?
- Do you agree with these?
- Is there anything else you believe is missing and needs to be considered?
- How would you rate these priorities and why?



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Feedback

The logo for National Grid, featuring the word "nationalgrid" in a white, lowercase, sans-serif font. The "n" is lowercase, while "ationalgrid" is lowercase. The logo is positioned in the top right corner of the image, set against a dark blue background.

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The word "Lunch" in a bold, blue, sans-serif font, positioned in the middle-left area of the image. The text is centered vertically within its horizontal span and is set against a white background.

Lunch



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Voting

Question 5

- *What do you think should be the priority areas of focus for RIIO-2?*
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Select your first priority now

and second priority

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and fourth priority

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and fifth priority

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and sixth priority

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and finally seventh priority

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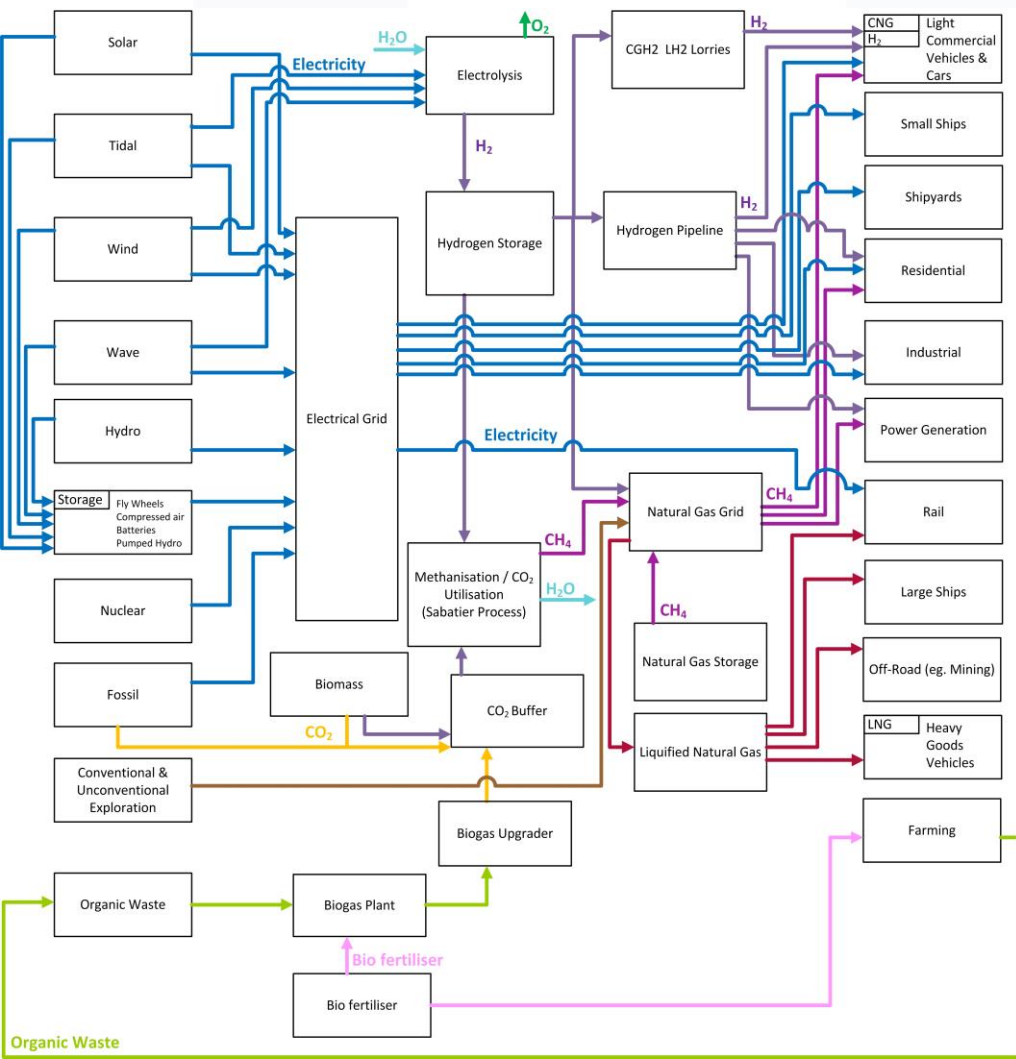
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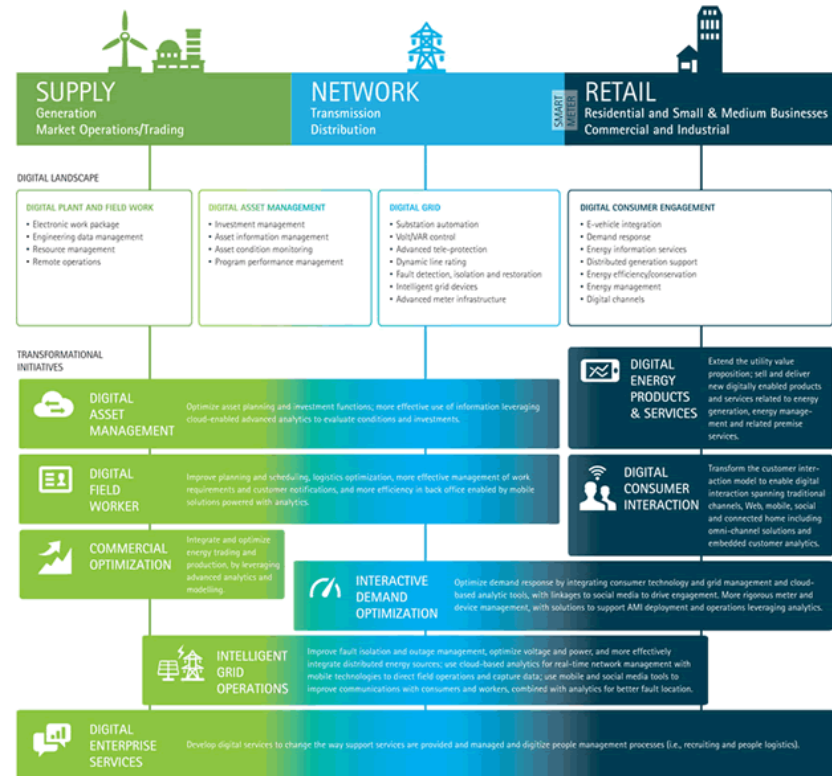
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Delivering the future energy system in the UK

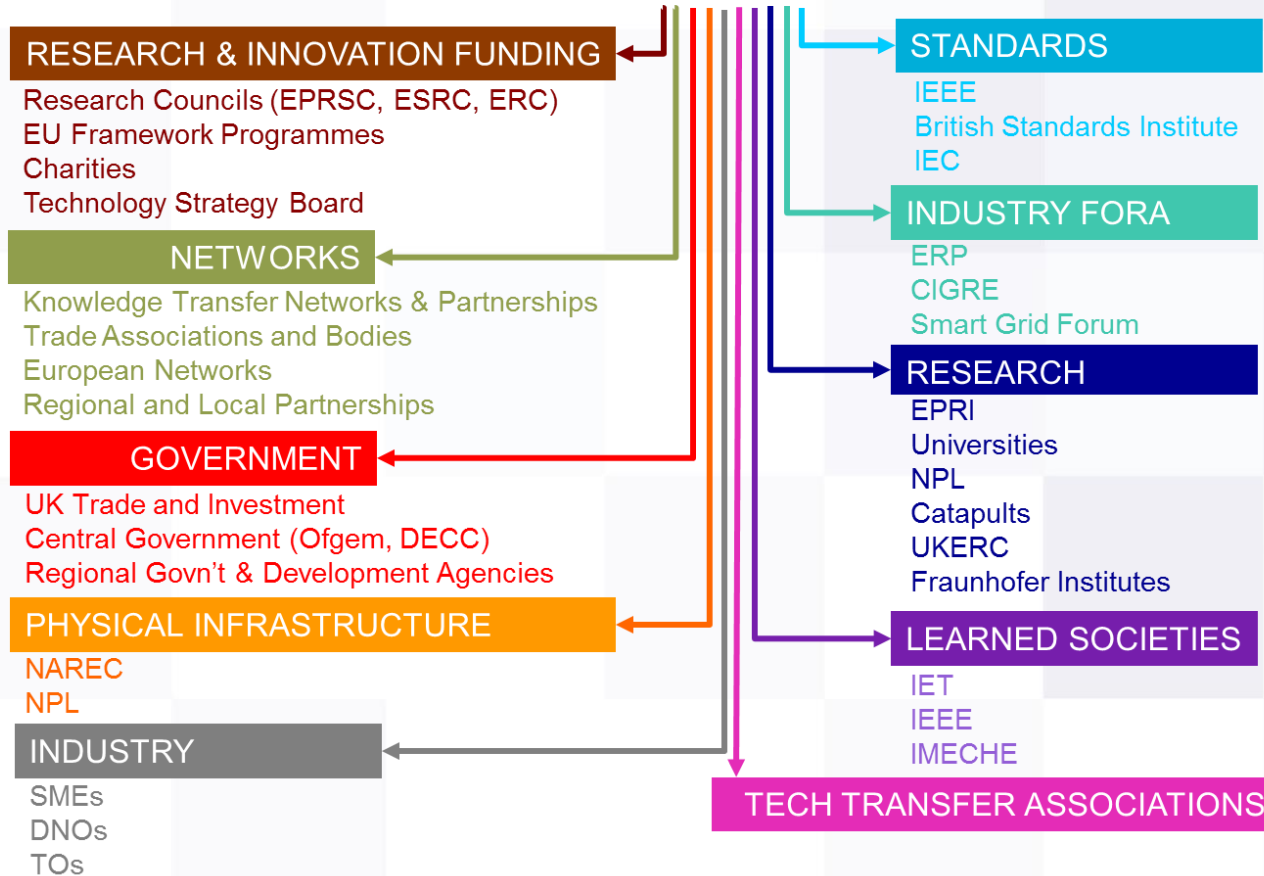


Interactions

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The Innovation Landscape



QUESTIONS

Where does your organisation sit?

What do you want from us?
(funding, support, involvement)

How do you think the various organisations, including us, should interact?

What areas should we be innovating in and at what TRL level?

Voting Results

Results

What do you think should be the priority areas of focus for RIIO-2?

1. Focus on long-term value for customers (system operability, decarbonisation, digitisation)
2. Drive the transition to business as usual
3. Stronger incentives to innovate
4. Greater reward for innovation performance
5. Network companies taking a greater share of the risk
6. Enable greater third party involvement
7. Enable co-ordination with wider public sector funding.

How should we continue to engage?

- Innovation is a key topic area
- We want to make sure we interact with you in the best possible way, to ensure that our plans deliver what you want

Table discussion

- Please have a short discussion on your tables about how best to continue this engagement (channels, frequency, etc)



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Close



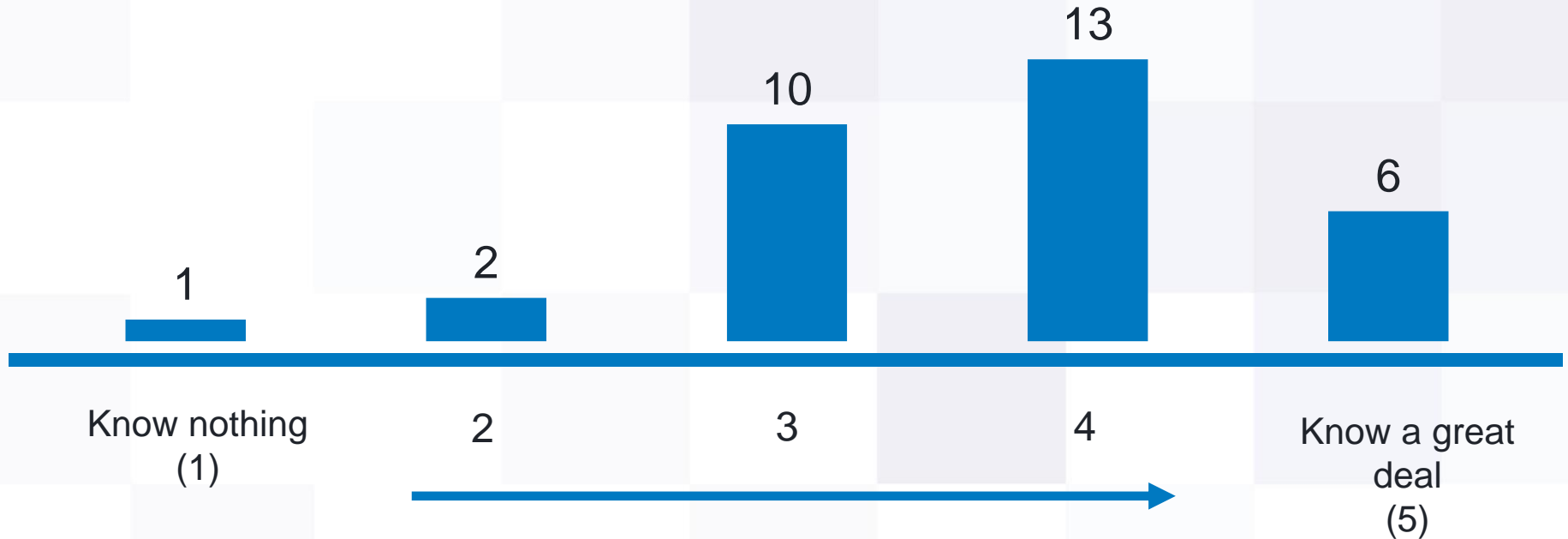
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The final vote...

Knowledge of innovation

- *On a scale of 1 to 5, where 1 is know nothing and 5 is know a great deal, how much would you say you know about National Grid's electricity transmission innovation?*
 1. Know nothing
 - 2.
 - 3.
 - 4.
 5. Know a great deal

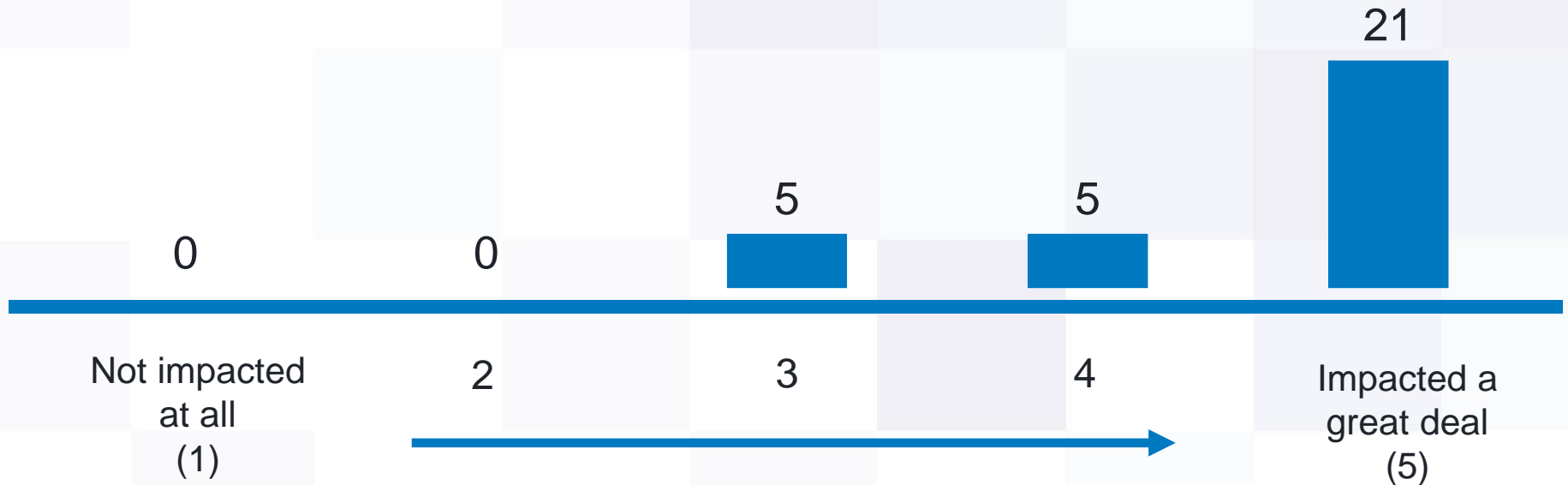
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Our impact on you

- *On a scale of 1 to 5, where 1 is not impacted at all and 5 is impacted a great deal, how impacted are you (or those you represent) by the topic of Innovation?*
 1. Not impacted at all
 - 2.
 - 3.
 - 4.
 5. Impacted a great deal

On a scale of 1 to 5, where 1 is not impacted at all and 5 is impacted a great deal, how impacted are you (or those you represent) by the topic of Innovation?



What happens next

- Our commitment
 - We'll process everything you've told us today
 - We'll summarise today's event and send it to you
 - We'll use your comments to plan our future engagement activities
 - We will present your comments to our stakeholder group
 - We'll keep you informed

To find out more:

- Join us at the Low Carbon Networks & Innovation Conference (LCNI)
16 & 17 October, Telford
- Follow us on LinkedIn *Innovation at National Grid*
- Visit our websites using the **QR Codes:**
 - Deeside**
 - NGET Innovation website**
 - Ofgem consultation website**
- Innovation .box.ETO.innovationteam@nationalgrid.com



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Thank you
(and please leave your feedback!)

