

Shaping the Gas Transmission System of the Future

Keynote speech

We will start at 09.02 to allow participants to finish previous meetings and join the call

nationalgrid



While you are waiting, please access Sli.do which we will be using for Q&A

Event Code:

#GTX1

Sli.do Instructions:

You can access Sli.do at www.sli.do or by downloading the Sli.do app.

Once you've logged on, enter the code above when prompted.



Who will be speaking today?

**Jon
Butterworth**
CEO of Gas
Transmission



**Bridget
Hartley**
Head of Strategy



**Jennifer
Pemberton**
Stakeholder
Experience
Manager



Logistics



Should last for approximately about 60 min



Questions and polling via slido.com #GTX1



All callers will be placed on mute



We will circulate the slides and a recording of this webinar

Agenda

Key note speech

Performance update

Questions

What's next – Shaping the Gas Transmission System of the Future

Gas
Transmission

01

Jon
Butterworth

nationalgrid



The role of gas in the UK

23m

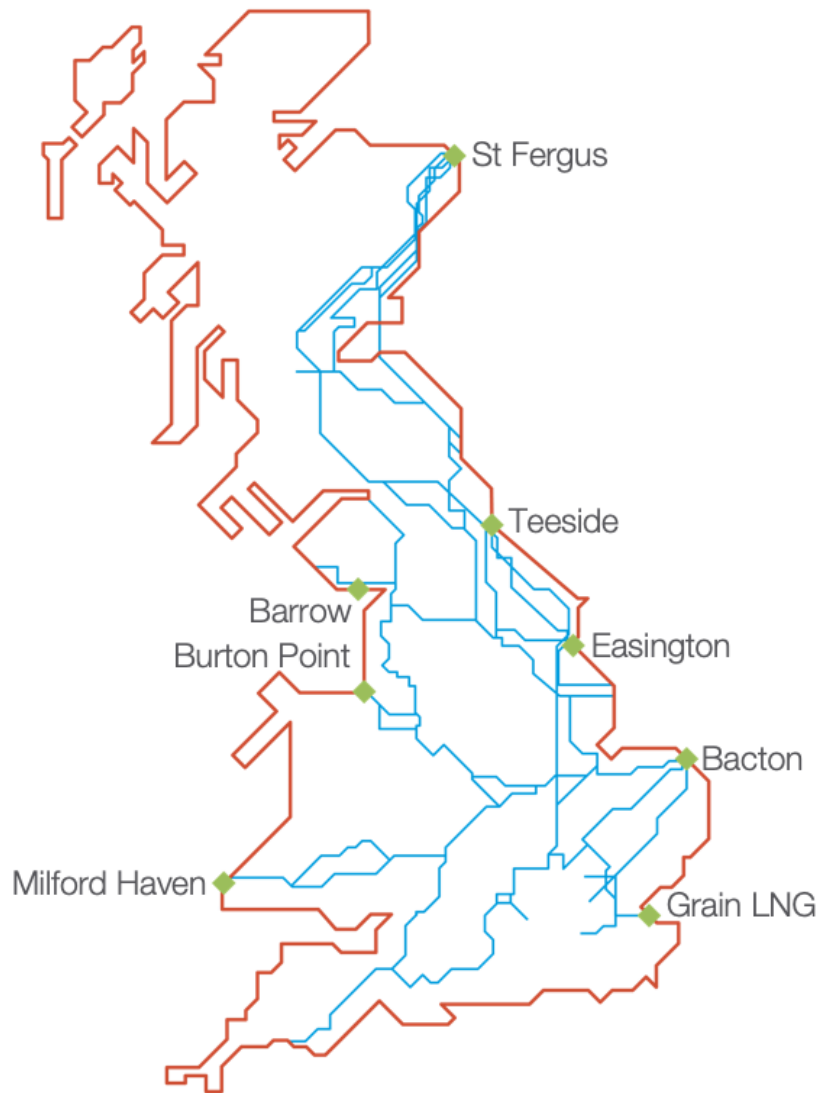
gas customers in the UK

85%

households are using gas for heat

877 TWh

of energy is delivered by the NTS



39%

Power Generation

38%

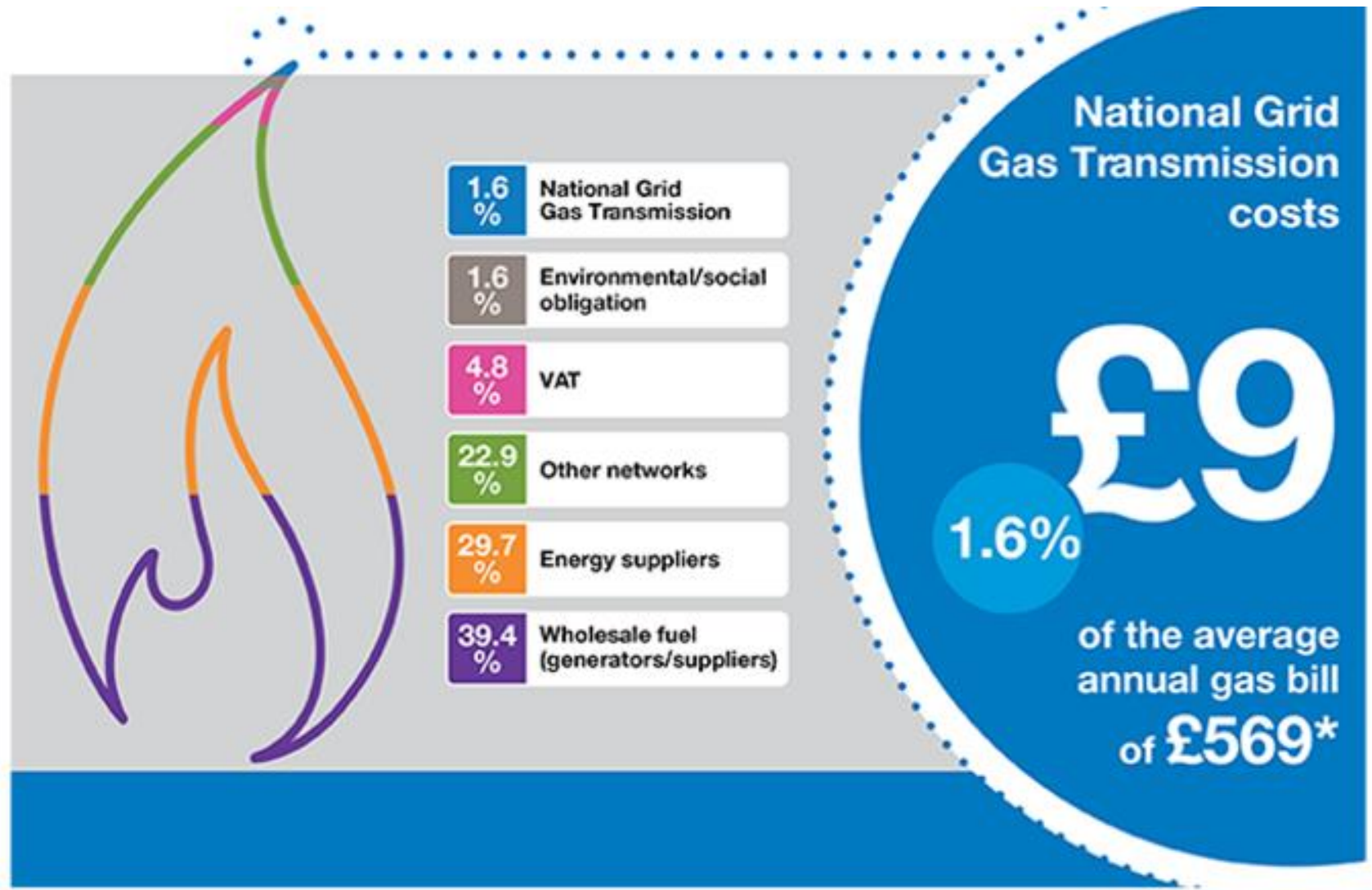
Domestic Use

23%

Industrial & Commercial

Value for consumers

Our costs make up around 1.6% (or £9) of the average annual gas bill



Now engaging amid some the biggest challenges the industry has ever faced

“...this home-grown clean energy source has the potential to transform the way we power our lives and will be essential to tackling climate change and reaching Net Zero...”

(Kwasi Kwarteng)



GB Grid Carbon Intensity

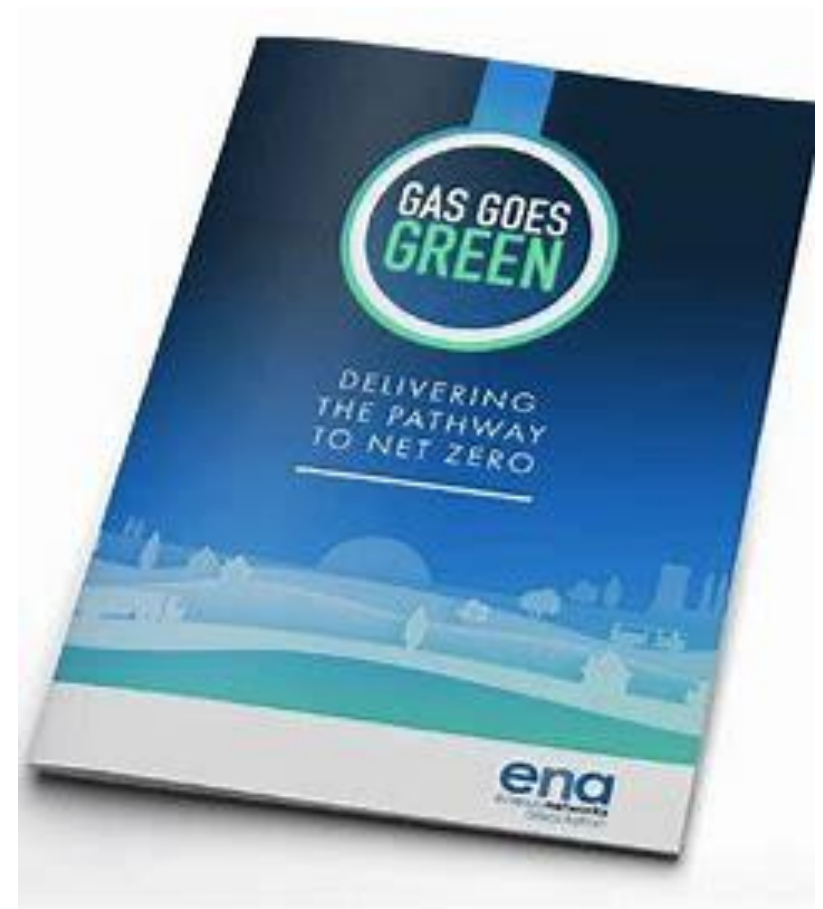


286
gCO₂/kWh

	Gas	18900 MW	(51.4%)
	Solar	4000 MW	(10.8%)
	Nuclear	4000 MW	(10.8%)
	Wind	3000 MW	(8.0%)
	Biomass	2400 MW	(6.5%)
	Coal	1500 MW	(4.1%)
	Belgium	980 MW	(2.7%)
	France	940 MW	(2.6%)
	Netherlands	570 MW	(1.6%)
	Hydro	360 MW	(1.0%)
	Other	200 MW	(0.5%)

Leading a clean energy future for everyone

- Has already played a role by **displacing coal** in the energy mix
- Gas evolution to Hydrogen means **no one gets left behind**
- Gas provides the **reliability** and **flexibility** to support intermittent renewables
- Even as we decarbonise, investment will still be required to support
 - **Changing flows**
 - **Security of supply**
- Our National Transmission System provides future **options** for hydrogen, being explored through FutureGrid, Project Union and a range of other projects



Upcoming sessions

Future of Gas
Wed 24th Nov @ 10.30

Gas Markets Plan
Tue 30th Nov @ 09.30

Transitioning to a
hydrogen backbone
Thu 02nd Dec @ 10.00

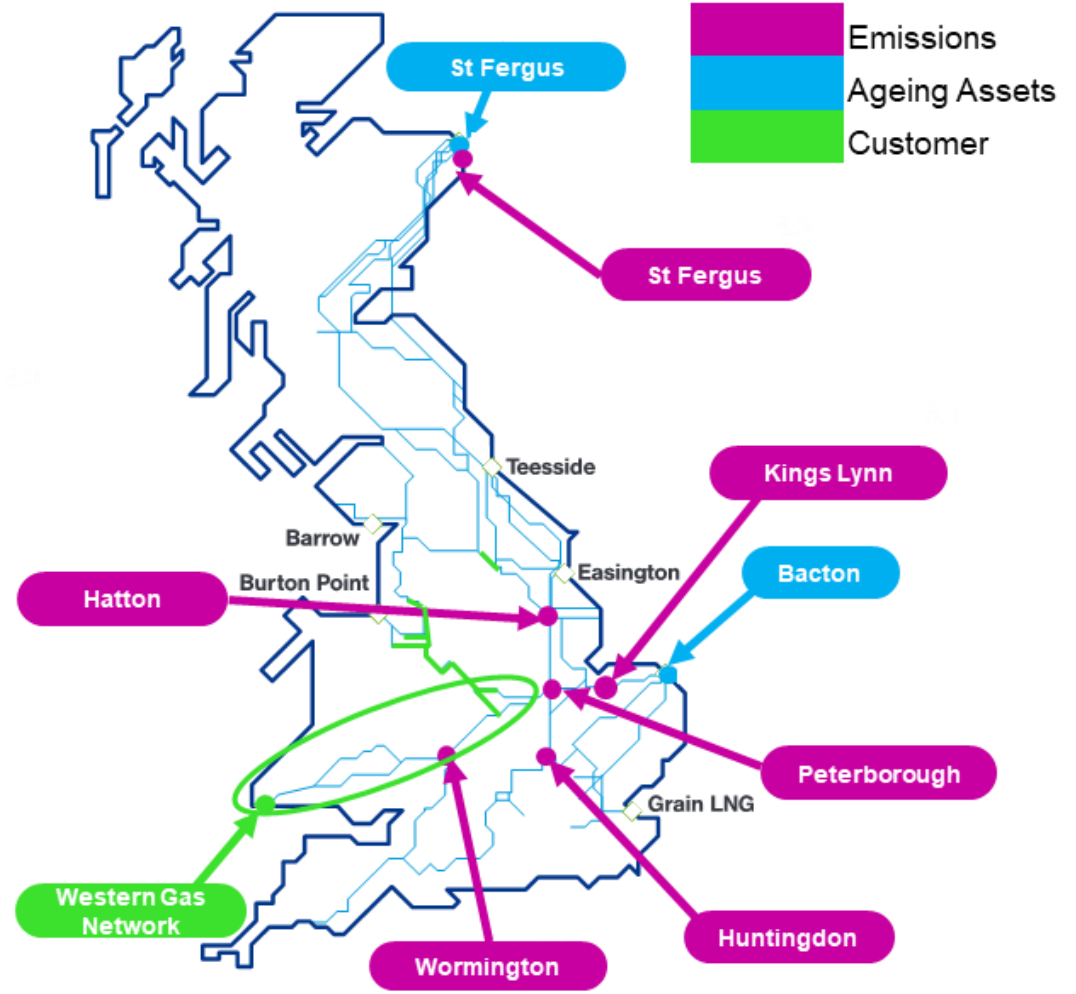
Supporting regional
hydrogen transitions
Fri 03rd Dec @ 09.00

Understanding the
skills needed for a net
zero world
Mon 06th Dec @ 13.00

FutureGrid 2021
Progress report
Tue 14th Dec @ 10.00

Now delivering our £2bn RIIO-2 investment programme

Location	Driver
Peterborough	Medium Combustion Plants Directive Emission Reductions Project
Kings Lynn	Medium Combustion Plants Directive
Wormington	Medium Combustion Plants Directive
Hatton	Large Combustion Plants Directive
Huntingdon	Emission Reductions Project
St Fergus	Medium Combustion Plants Directive
St Fergus	Large Combustion Plants Directive
Bacton	Future Operating Strategy Asset Health
St Fergus	Future Operating Strategy Asset Health Cyber Security
Western Gas Network	Planning & Advanced Reservation of Capacity Agreement
HS2	Phase 2A Phase 2B



02

**Our commitment
to you**

nationalgrid



Next steps – our commitment to you

We will:

- be **transparent, open** and act with **integrity**
- **act** on your insights
- **improve** our **focus** on your needs

Your feedback will **guide** and **inform** our future plans

Our aim is to be a **simpler** organisation to deal with - we want to be able to show you **tangible results** from our engagement

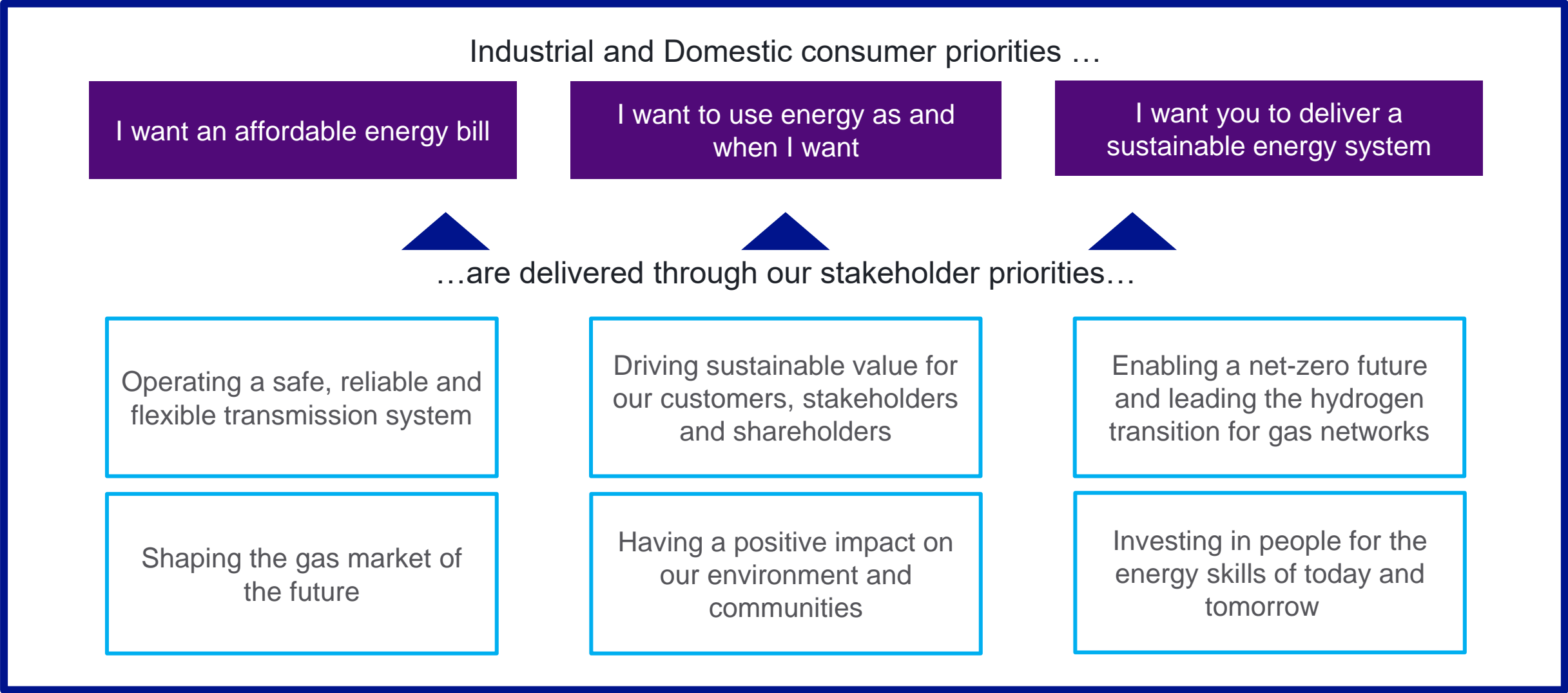
03

**Performance update
against our
stakeholder priorities**

Bridget Hartley



Our consumer and stakeholder priorities



Stakeholder priorities



Operating a safe, reliable and flexible transmission system

Gas Transmission is fully prepared ahead of winter demands and continues to safely operate national critical infrastructure

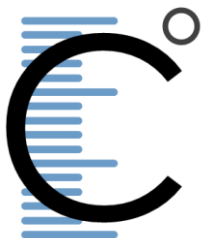
Safe

Operational Safety Performance

Key Performance Indicator	YTD Performance
Lost Time Injury Frequency rate	0.08
Serious Process Safety Incidents	3
Good Catches	716

Continued Safety Compliance

EXERCISE CELSIUS



In September, GT successfully delivered the annual Network Gas Supply Emergency (NGSE) Network Emergency Coordinator (NEC) assurance exercise with industry.

Reliable

Operational Reliability Performance

Key Performance Indicator	YTD Performance
% of NTS Available	100%
Capital Projects Delivered	212

Unit 1B gas generator change-out completed within 1 week at St Fergus



2021/22 winter outlook published

The gas supply margin is expected to be **sufficient** in all of our supply and demand scenarios.

Gas Winter Outlook Report

The Winter Outlook reports are designed to inform the energy industry, engage with customers and stakeholders over particular issues observed in the period and support the industry's understanding of last winter's supply and demand patterns.

[The document is supported by a data worksheet](#)

[Download the Winter Outlook report](#)

Operating the network
Wed 8th Dec @ 10.00

Driving sustainable value for our customers, stakeholders and shareholders

Innovation: Broadening the horizon
Thu 25th Nov @ 12.00

Following a successful RIIO-1 period, RIIO-2 has started positively and we are on-track to deliver positive outcomes

Customer and Stakeholder

- Stakeholder-led “**Future of Gas**” story which has been well received.
- Continue to **deliver strong customer service**
- Continue to engage extensively with Ofgem and stakeholders as we develop** reopener submissions (Bacton, Wormington, Kings Lynn and St Fergus)

KPI	20/21	Current Performance
Customer Satisfaction	8.17	8.76
Stakeholder Satisfaction	8.42	8.89
We listen and act on stakeholder feedback	59%	100%
No of topics discussed with our Independent User Group		11

Reopener progress

- Western Gas Network (WGN) LNG Supply expansion:** Ofgem have reviewed and support our proposed option report, which was subject to consultation in October 2021.
- St Fergus Compression:** Extensive stakeholder engagement has taken place, alongside commercial charging discussions.
- Bacton Terminal:** Extensive stakeholder engagement has taken place to establish the right approach for consumers
- Wormington:** Positive feedback from Ofgem regarding the options being evaluate

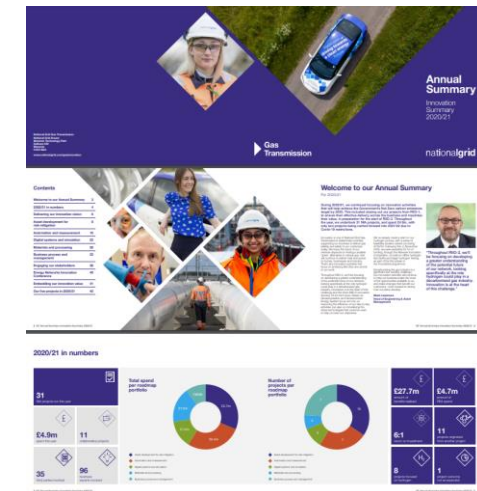


Innovation

31 Innovation projects £4.9m invested

£27.7m benefits realised

11 collaborative projects



<https://www.nationalgrid.com/uk/gas-transmission/document/136341/download>

Enabling a net-zero future and leading the hydrogen transition for gas networks

- Invested significantly in our **hydrogen capability** and working collaboratively with government and partners.
- Developed an ambitious programme to build a **hydrogen test facility** from decommissioned assets to demonstrate the National Transmission System (NTS) can transport hydrogen



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Understanding the
skills needed for a net
zero world
Mon 06th Dec @ 13.00

FutureGrid 2021
Progress report
Tue 14th Dec @ 10.00

Gas Transmission has been at the centre of a major hydrogen pilot and research projects in the UK informing our work on future gas markets

Gas Markets Plan

- Cross industry working group generated **four hydrogen scenarios** as the first stage of the Hydrogen Gas Market Plan (GMaP) project.
 - indicate to market participants the **events** or **triggers** that could lead to future market change
 - scenarios explore the **potential role** of various hydrogen **production** and **storage** technologies, hydrogen **transportation** options and user conversion routes to full 100% hydrogen.



Collaborative Pilots



- Multiple projects to demonstrate safe transport of hydrogen in the gas grid
- Partnering with gas distribution networks, HSE and others

Examples of projects to demonstrate the potential for gas grid blending of 20%



Government Engagement

Hydrogen Programme Development Group



- Coordinating key stakeholders (gas networks, BEIS and HSE) on a forward workplan for hydrogen projects

Gas Goes Green



- Evaluate the potential for gas network conversion to hydrogen
- Led by the Energy Networks Association (ENA), bringing together all gas networks

Having a positive impact on our environment and communities

Managing Methane emissions

Thu 2nd Dec @ 13.00

Our Environmental Action Plan outlines the actions that must be undertaken to deliver value for customers, stakeholders, and the assets themselves

Air Quality

Reduced nitric oxide emissions from gas turbine emissions

Our Climate

Reduce methane emissions, 30% electric vehicle operational fleet vehicle target

Leadership for Change

Environmental sustainability training, annual environmental report, transparent in capital carbon and natural capital.

Natural Environment

10% increase in environmental value on non-operational land, 10% net gain on construction projects

Responsible Asset Use

Reduce office waste and sites by 20%, recycle 60%+ waste at offices, reduce water use by 20%

The landscape is constantly changing, with opportunities to accelerate reducing methane emissions on the road to Net Zero 2050

Current Activity



Monitoring of Real-time Fugitive Emissions (MORFE) at 23 of our compressor stations for methane baseline assessments.



New, modern pipeline **recompression** equipment to remove the need to vent pipelines into the atmosphere during maintenance.

Innovation



Innovation project **CHARGE** – aiming to reduce losses.



Collaborating with BEIS, ENA, UN (COP26) and EU to drive the methane reduction agenda.

Investing in people for the energy skills of today and tomorrow

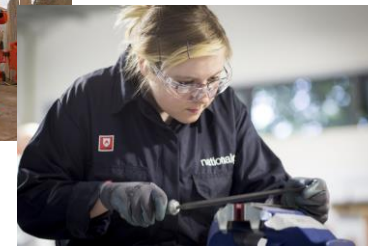
Understanding the skills needed for a net zero world
Mon 06th Dec @ 13.00

There is an overwhelming need to deliver Net Zero for society and this journey starts with our people

Skills & Competencies for Hydrogen Networks NIA project

- **Whole gas system** – Transmission to domestic meters
- Assessment of **current state** of skills and competencies and triage what changes will need to be made
- Looking at **new training tools** and **techniques**
- **Collaborative** project involving all of the gas networks
- **Four phases** delivered over 12 months (Functional requirements, concept development, roadmap development and reporting)

A roadmap outlining the development of future training and competency requirements



IEMA

Transforming the world to sustainability

We are working with the Institute of Environmental Management and Assessment (IEMA) on the following:



Developing **carbon literacy** training for all employees tailored to specific job roles and accountabilities – accredited to latest standards with most recent science.



'**Critical friend**' to review and provide insight into strategies and progress.



Additional training requirements in the pipeline to include other sustainability topics

Proposed amendment to our stakeholder priorities

Our purpose

Leading a clean energy future for everyone

Based on stakeholder feedback we have simplified our purpose to reflect how our role in society has changed.
This is based on stakeholder feedback

Our priorities

-  To operate safely, reliably and flexibly
-  To deliver sustainable value for customers and stakeholders
-  To drive positive environmental and community impact
-  To invest in our people, grow our capability and value everyone's contribution
-  To shape the gas market of the future

Our values

Ownership
Simplicity
Progress

These are implemented to address stakeholder feedback

Our core priorities have not changed

**Do our updated priorities
continue to deliver your needs?**

Please explain

Q&A



Upcoming events

Future of Gas	Wed 24th Nov 10.30 – 11.30	Register here
Innovation – broadening the horizon	Thu 25th Nov 12.00 – 13.00	Register here
Gas Market Plan	Tue 30th Nov 09.30 – 10.30	Register here
Transitioning to a hydrogen backbone	Thu 02 nd Dec 10.00 – 11.00	Register here
Managing methane emissions	Thu 02 nd Dec 13.00 – 14.00	Register here
Supporting regional hydrogen transitions	Fri 02 nd Dec 09.00 – 10.00	Register here
Understanding the skills needed for a net zero world	Mon 06 th Dec 13.00 – 14.00	Register here
Digital Strategy and Information Provision	Tue 07 th Dec 13.30 – 14.30	Register here
Operating the network	Wed 08 th Dec 09.00 – 10.00	Register here
FutureGrid 2021 Progress report	Tue 14 th Dec 10.00 – 11.00	Register here
Annual Network Capability Assessment Report	Wed 15 nd Dec 10.00 – 11.00	Register here

What next?



You will receive the recording and material from today's session



If you have any further questions or would like to discuss anything specific please get in touch with Jennifer.Pemberton@nationalgrid.com



Feedback is important to us, therefore if you have not already taken part, we would like to put you forward for a survey

Thank you for joining us

