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Gas Goes Green

Insights Forum

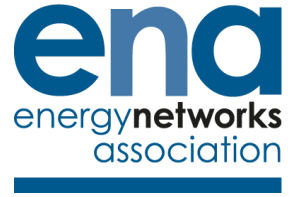
Kick off meeting

Thursday 8<sup>th</sup> December 2022

DELIVERING THE  
PATHWAY TO NET ZERO



# Thank you for joining our first Insights Forum. We will start at 10:02



A few of points to remember:

- The meeting is being recorded and will be shared on ENA's YouTube Channel. By staying on this call you consent to this.
- Please mute your microphone when not speaking to avoid disruption. You may ask questions and make comments via the chat function
- If you are unable to play the audio through your device, you can dial in by calling **+44 20 3855 5363** (UK London) (Conference ID: 869 348 268# ).
- If you are unable to use chat functionality, try joining the Teams meeting via the Web app using incognito / private browsing (preferably with Chrome or Edge)
- We will make use of Q&A software during the session. Further details will be provided at the appropriate time during the meeting.

If you would like to contact the programme team directly, please do so at [GasGoesGreen@energynetworks.org](mailto:GasGoesGreen@energynetworks.org)





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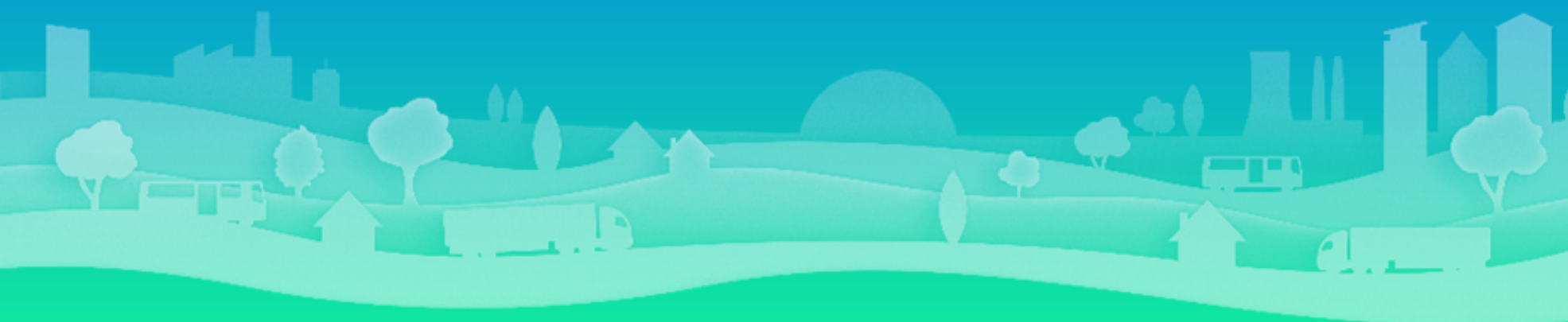
# Agenda

1. **Emily Jones, ENA:** New group structure
2. **James Earl, ENA:** Introduction
3. **Ed Gill, ENA:** Policy landscape overview
4. **James Whitmore, Cadent:** Hydrogen blending work overview
5. **James Earl, ENA:** Gas Goes Green's plans for 2023
6. **James Earl, ENA:** Wrap up

# New group structure

Emily Jones, ENA

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# New Group Structure



# New Group Structure

The Insights Forum is an open forum for industry representatives. The purpose of the Insights Forum is to:

- Increase stakeholder awareness of the Gas Goes Green programme and its upcoming activities, as well as looking at some of ENA's wider gas programme activities, and to
- Support collaboration wherever possible, and to
- Establish an open channel of communication between the Gas Goes Green programme and stakeholders

The Insights Forum will take place via an online meeting twice a year. Materials will be presented by ENA representatives, network representatives or project leads. The objective of these meetings is to:

- Provide a transparent overview of Gas Goes Green activities, disseminate project deliverables, and to
- Provide an opportunity for stakeholders to ask questions to the programme team and deliverable leads

[Insights Forum Terms of Reference](#)

[Review Group Terms of Reference](#)

# Introduction

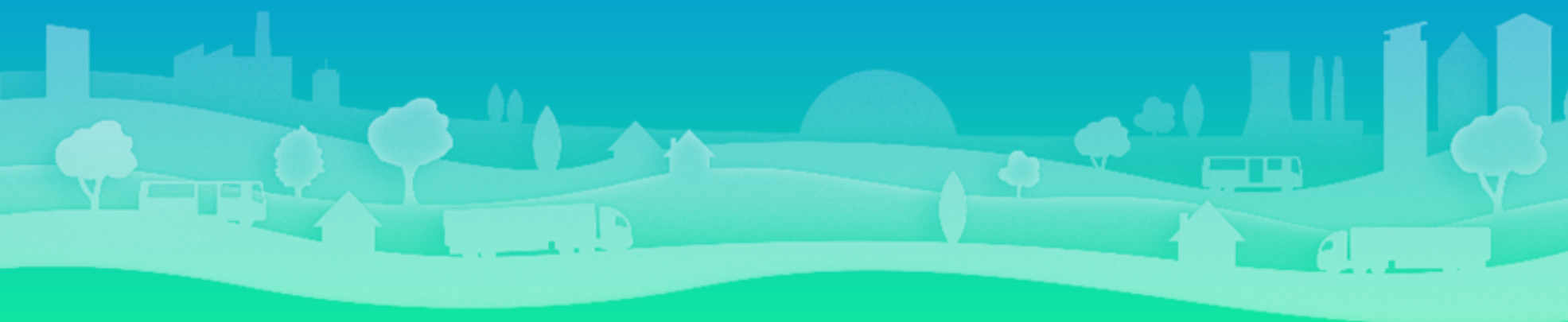
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# Policy landscape overview

Ed Gill, ENA

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# Current policy landscape: December 2022

- Proposals o hydrogen transportation & storage business models
- 2023 hydrogen blending decision
- 2022 Energy Security Bill:
  - Future System Operator
  - Hydrogen village trials
- Expected:
  - Consultation on hydrogen-ready boilers
  - Consultation on hydrogen certification



# GGG research informs ENA policy

For example:

- GGG Pathway (2019)
- Britain's Hydrogen Network Plan (2021)
- GGG Green Gas Scorecard (2021)
- GGG Systems For All Seasons research (2021)
- Britain's Hydrogen Blending Delivery Plan (2022)
- Enabling hydrogen blending from industrial clusters (2022)

**Key role for Insights Forum in shaping GGG research  
= key role in shaping ENA Markets Policy**

# 4 key policy areas: December 2022

1

## Transportation

- Speed is of the essence.
- RAB model based around outputs.
- Consider using RIIO-2 as interim measure.

2

## Blending

- More ambitious approach required.
- 'Flexible offtaker' rather than 'reserve offtaker'.
- Business models required.

3

## Storage

- Strategic decision first.
- RAB could be the best approach.
- Different types of storage will have different business model needs.

4

## Governance

- FSO about hydrogen as much as electricity.
- Strategic Policy Statement required.
- RIIO NIA future to be secured.

# Hydrogen blending work overview

James Whitmore, Cadent

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- Enter your question and your name
- Upvote other important or relevant questions





# The unique potential of hydrogen blending



No changes required to 20+ million homes

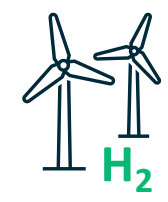
*Hydrogen blending can therefore be a **flexible off-taker**, which has the potential to...*

## Boost production



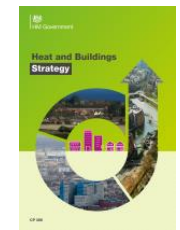
- Enable production to scale in readiness for demand
- Manage demand volume risk
- Decouple production from industrial clusters

## Reduce renewable curtailment



- 2.3 TWh<sup>1</sup> of wind curtailed in 2021
- Costing £507m<sup>1</sup>
- Curtailment peaks in 2035 at 50 – 80 TWh<sup>2</sup> per year

## Green the gas grid



- Reduce emissions from millions of homes and businesses
- Up to 10 million tonnes CO<sub>2</sub>
- Equal to heating 5 million homes

<sup>1</sup>Drax, 2022, Renewable curtailment and the role of long duration storage

<sup>2</sup>NG ESO, 2022, Future Energy Scenarios



# UK Government are preparing to make policy decisions on hydrogen blending



Ten Point Plan for a Green Industrial Revolution, Nov 2020  
committed to:

- Work with industry to undertake testing for 20% blending into the gas grid by 2023



UK Hydrogen Strategy, Aug 2021  
committed to:

- Undertake a value-for-money assessment Q3 2022
- Make a policy decision on blending 2023



# How is Gas Goes Green supporting Policy?

## Gas Goes Green's hydrogen blending mission

*To identify and develop a practical & economic framework for hydrogen blending, informing BEIS decision policy decision in 2023 and beyond*

### Key questions:

- What's the blending opportunity?
- How will blending physically happen, and what are the costs?
- Do the regulatory and commercial frameworks work for blending?
- How should access to the network be provided?
- What are the likely timescales?







# What's the blending opportunity?



## Blending 20% hydrogen (NTS<sup>3</sup> & DN<sup>s</sup><sup>4</sup>)

- 60 TWh pa. of hydrogen nationally
- Equivalent to heating 5 million homes
- 10 MtCO<sub>2</sub>e

## Blending 20% hydrogen (DN<sup>s</sup>)

- 35 TWh pa. of hydrogen
- Equivalent to heating 3 million homes
- 6 MtCO<sub>2</sub>e



# How will blending physically happen?

## Functional Specification for blending facilities

- Compliance with regulations
- Gas Mixing
- Gas Quality & Odourisation
- Ownership models

Notes on Completion: Please refer to the appropriate NIA Governance Document to assist in the completion of this form. The full completed submission should not exceed 8 pages in total.

### NIA Project Registration and PEA Document

Date of Submission May 2022	Project Reference Number NA_CAD0079
Project Registration	
Project Title FH011 - Functional Specification: Hydrogen Blending Infrastructure	
Project Reference Number NA_CAD0079	Project Licensee(s) Cadent
Project Start May 2022	Project Duration 0 years and 7 months
Nominated Project Contact(s) James Whitson	Project Budget £180,000.00

**Summary**  
Hydrogen is a key energy source for the Net Zero transition and is being considered as an alternative to natural gas. Over the next 5 years there is an ambitious work plan within the UK's gas transmission and distribution industry to prove the viability of blending hydrogen into the UK's existing gas networks.  
This project seeks to develop a functional specification for the infrastructure required to blend hydrogen from industrial clusters. Separate projects will explore the adaptations necessary to commercial networks and in other blending scenarios.

**Nominated Contact Email Address(es)**  
jwhitson@cadentgas.com

**Problem Being Solved**  
The UK's objectives to meet net-zero by 2050 require urgent solutions to decarbonise heat. 65% of homes are heated by natural gas. Therefore an approach that includes reconfiguring all or part of the existing gas network for hydrogen service is likely to provide an effective solution. Furthermore, blending up to 25% hydrogen with natural gas could provide quick and meaningful carbon reductions, with little to-no disruption for consumers. Blending hydrogen into the gas grid provides a reliable demand to enable the development of hydrogen production models and the wider supply chains. The government have recognised the important role of hydrogen blending by including the ability to blend hydrogen into the gas grids by 2023 as a policy objective within its 10-point plan.  
Hydrogen blending in the UK has been undertaken in trials, but wider deployment of blending into GB's natural gas grid is novel and will be subject to further considerations. At this stage it is unknown what infrastructure will be required at a blending facility and the surrounding network to successfully deploy hydrogen blending, while maintaining compliance with the relevant codes and regulations.

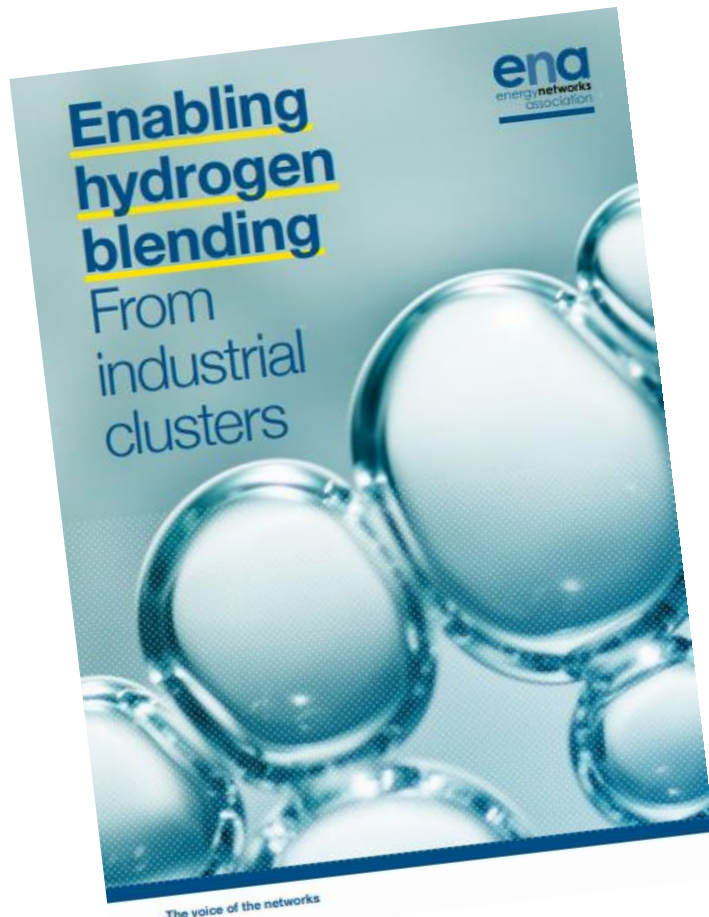
## Case studies

- Test functional specification with high level design
- Gas mixing modelling
- Indicative costs



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# Do the regulatory and commercial framework work for blending?



## Existing frameworks largely work

- Roles and responsibilities remain
- Gas (and therefore hydrogen) can be traded at the National Balancing Point on the basis of energy
- Early hydrogen blending can commence within the current billing regulations
- A capacity / connection methodology should be developed
- Transportation charging methodologies should be reviewed



# What's in store for 2023?

## Policy

- BEIS conclude VfM<sup>5</sup> and determine 'preferred way forward' early 2023
  - BEIS make final policy decision late 2023

## Safety

- HyDeploy evidence for distribution completes
  - Future Grid evidence continuing

## Practical Implementation (Gas Goes Green)

- Deeper dive regulatory and commercial review
- Develop capacity / connection methodology
- Develop blending timeline (for GDNs and NTS)

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## **Audience Q&A Session**

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# Gas Goes Green's Plans for 2023

James Earl, ENA



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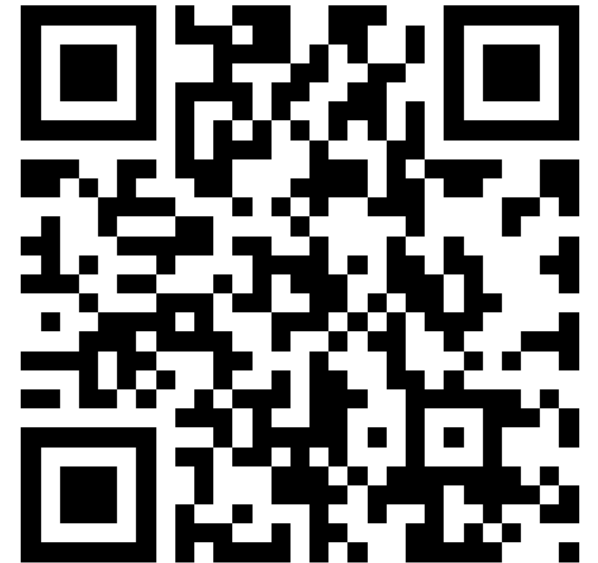
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# Gas Goes Green's plans for 2023

## Hydrogen Vision

- Currently drawing together our existing into one plausible, consistent Hydrogen Vision
- This will articulate how hydrogen infrastructure across the UK can be rolled out and coordinated, and the value of doing so

## Hydrogen blending decision: 2023

- Significant focus on hydrogen blending, leading up to the BEIS 2023 hydrogen blending policy decision
- Focus will be on 1) articulating the value of hydrogen blending 2) support BEIS with the value for money case and 3) discrete projects looking at detailed transition aspects

## Hydrogen heating decision: 2026

- Continue to work with BEIS to feed evidence into the 2026 Hydrogen for heating policy decision
- Focus on Hydrogen Village Trials and Hydrogen Town proposals, as well as building the safety evidence

## Biomethane

- Continue working with the biomethane community via our Entry Customer Forum to ensure we are supporting producers to maximise biomethane injection into the gas grid
- Evaluate the role of biomethane and hydrogen in delivering a zero-carbon gas grid

## Whole Systems

- Use ENA's Whole System Strategy Board to progress Whole Systems thinking on decarbonising the energy transition





# Gas Goes Green's plans for 2023

- Further projects on hydrogen blending feeding into the BEIS 2023 hydrogen blending policy decision
- Continue to work with BEIS to feed evidence into the 2026 Hydrogen for heating policy decision
- Continue working with the biomethane community via our Entry Customer Forum to ensure we are supporting producers to maximise biomethane injection into the gas grid
- Use ENA's Whole System Strategy Board to progress Whole Systems thinking on decarbonising the energy transition



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## **Audience Q&A Session**

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## Wrap up

- **Thank you for attending today**
- **The recording will be uploaded to YouTube**
- **The next Insights Forum will be held in May 2023**