Gas
Transmission

Gas Operational Forum

MS Teams
24 February 2022
10.02am

Questions
MS Forms (link in the chat)
Teams Chat

nationalgrid

Gas
Transmission

Introduction & Agenda

Joshua Bates
Operational Liaison Manager

nationalgrid

Presenters

National Grid Gas

Joshua Bates – Operational Liaison Manager

Martin Cahill – Senior Operational Liaison Officer

Sam Holmes - Operational Liaison Analyst

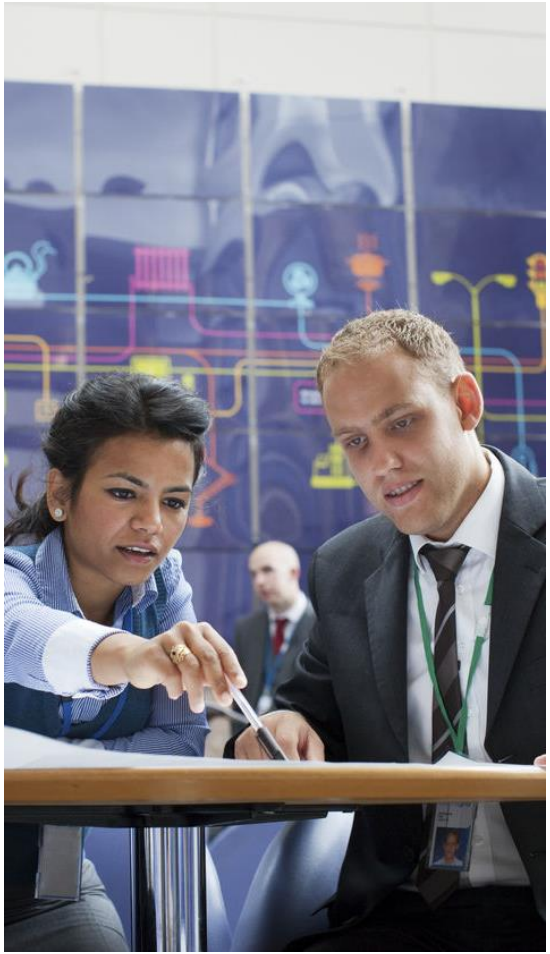
Alastair Grundy - Hydrogen Development Engineer

Emily Ly - Senior Hydrogen Analyst

Heleena Chauhan - Emergency & Incident Frameworks Officer

BEIS

Euan McCarthy - Team Leader - European Gas, Networks and Markets



Calendar year 2022 Operational Forums

The forums will be hybrid via Microsoft Teams and at the Clermont Hotel, London (exc. January).

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Online	Clermont & Online	Clermont & Online	x	Clermont & Online	Clermont & Online	x	x	Clermont & Online	Clermont & Online	Clermont & Online	x
20/01	24/02	31/03		19/05	30/06			15/09	20/10	24/11	

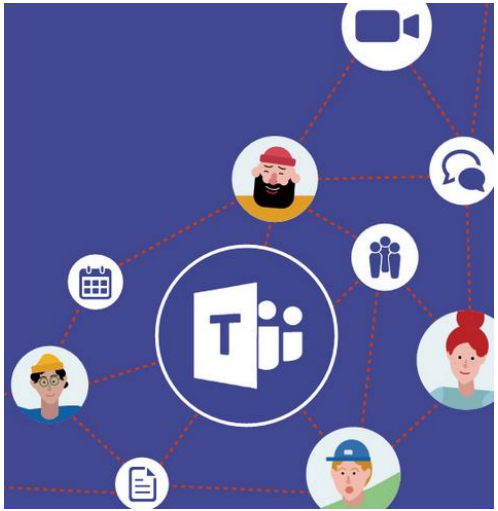
Registration is open for the March 2022 event at:
https://www.eventbrite.co.uk/e/operational-forum-march-in-person-tickets-275538873187

The Clermont Hotel
Charing Cross
London
WC2N 5HX

Housekeeping for Forums

For Microsoft Teams participants;

- Attendees will be automatically muted on dial-in and cameras will be unavailable.
- You can use the ‘raise a hand’ function if you would like to speak and we will enable your camera and microphone options.
- You will then need to un-mute yourself and turn your camera on to ask your question.
- We will be taking questions via the chat function, or if you would like to remain anonymous please use Microsoft Forms (link in the chat)

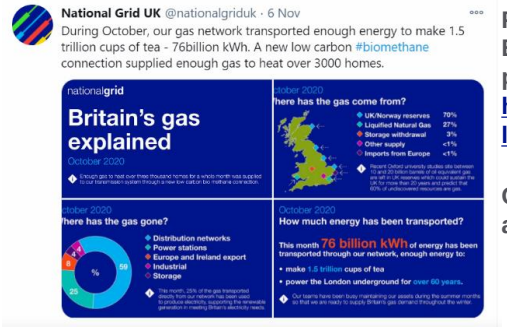


Key resources available to you

Registration is open for all events at:
https://www.nationalgridgas.com/data-and-operations/operational-forum

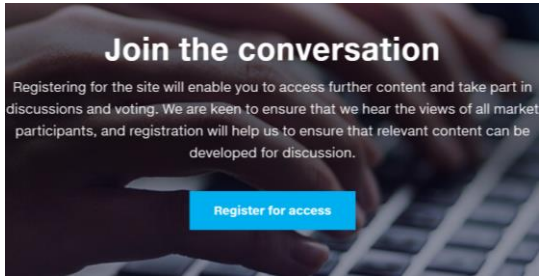
Gas Distribution List

https://subscribers.nationalgrid.co.uk/h/d/4A93B2F6FAF273DE



For the monthly Gas Explained information please visit;
https://twitter.com/nationalgriduk

Or follow our personal accounts on LinkedIn



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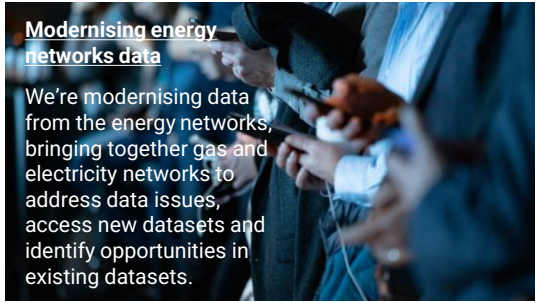
For the National Grid Gas Website, please visit;
https://www.nationalgridgas.com/about-us

Maintenance Planning
https://www.nationalgrid.com/uk/gas-transmission/data-and-operations/maintenance



Energy Data Request Tool:
Microsoft Forms Link

How to contact us

Operational Liaison Team

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Martin Cahill: Martin.Cahill@nationalgrid.com

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Box.OperationalLiaison@nationalgrid.com

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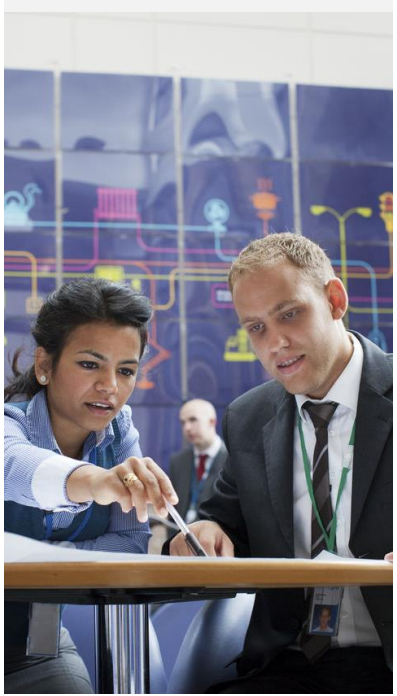

Agenda for Today

01	Welcome and Introduction (GMaP Advert)	10:02
02	Operational Overview Industrial Demand Focus	10:10
03	Guest Presentation: BEIS - EU Hydrogen and Decarbonised Gas Markets Package	10:25
04	Net Zero Focus: Project Union & East Coast Hydrogen	10:45
05	Emergency Planning Celsius Report, Exercise Disrupt & ECQ Webinar	11:10
06	GS(M)R Review Update	11:25
07	Maintenance Plan 2022	11:35
08	Information Provision	11:45
09	Updates: UNC0785 Gemini Update	11:55

Please ask any questions using the chat function, or through Microsoft Forms (link in the chat).

Questions will be covered at the end of each agenda section.

GMaP Project:
Benefits to Industry of enhanced Gas Quality data

Why: GS(M)R, Bio-methane, Transparency, Decarbonisation

What: Current Data, Desirable Data, Optionality, Costing

Who: Terminals, GDNs, Direct Connects

When: March 2022

Please contact Jonathan.Cranmer@nationalgrid.com directly or get in touch through our box account Box.FOGForum@nationalgrid.com

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Operational Overview

Martin Cahill
Senior Operational Liaison Officer

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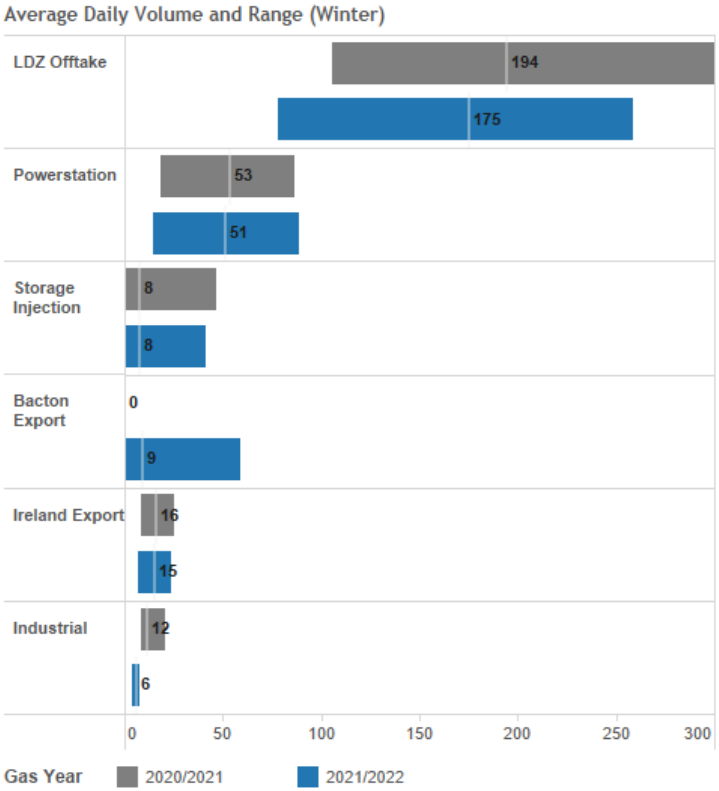
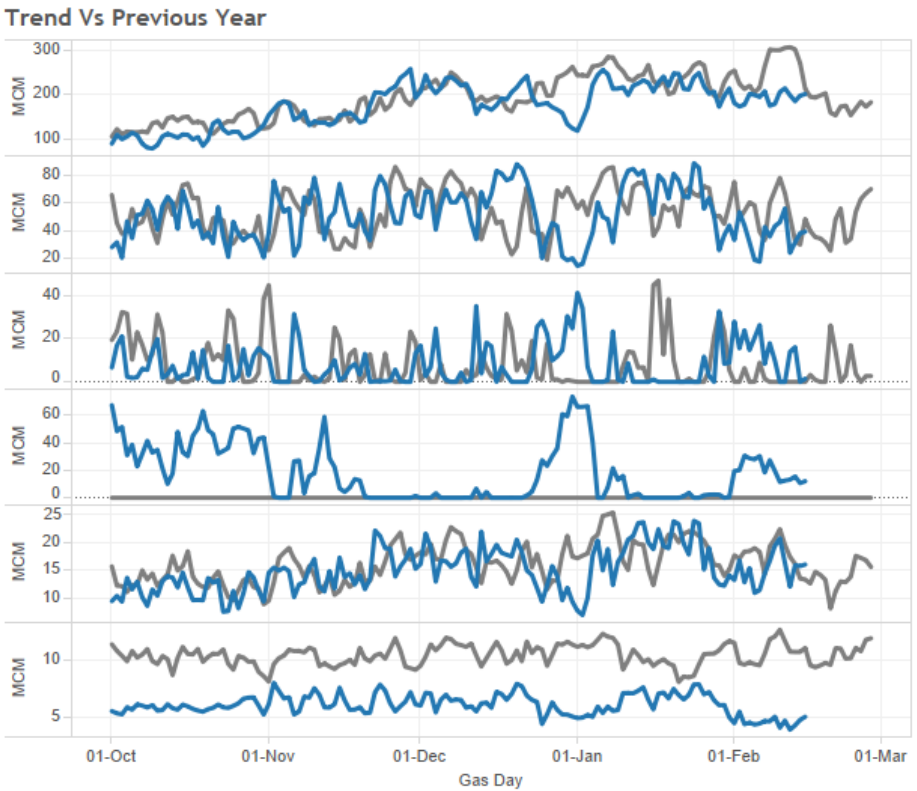
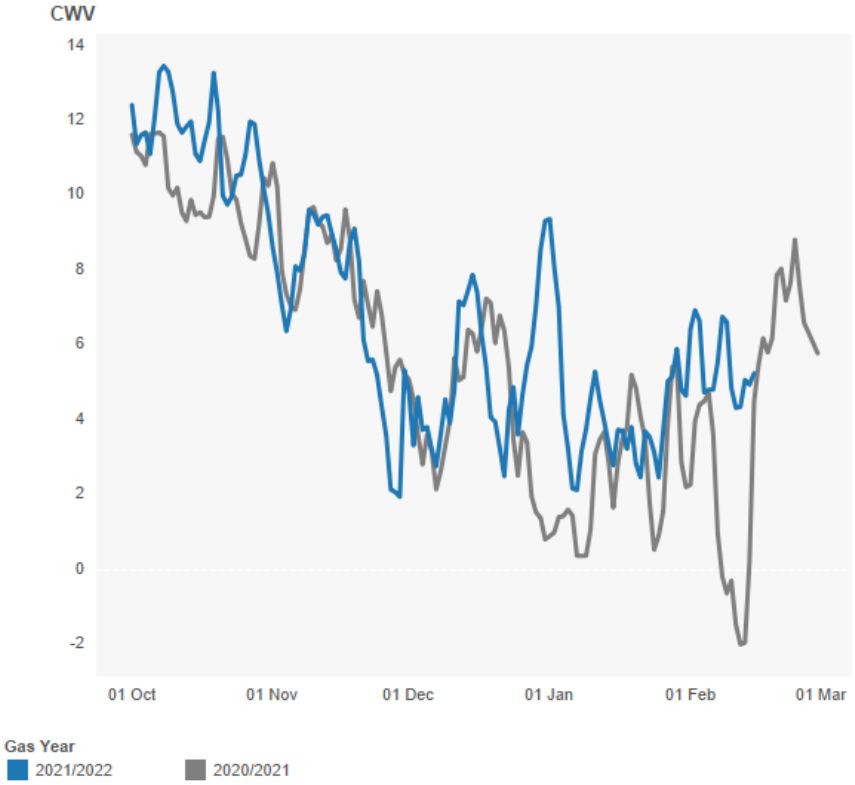
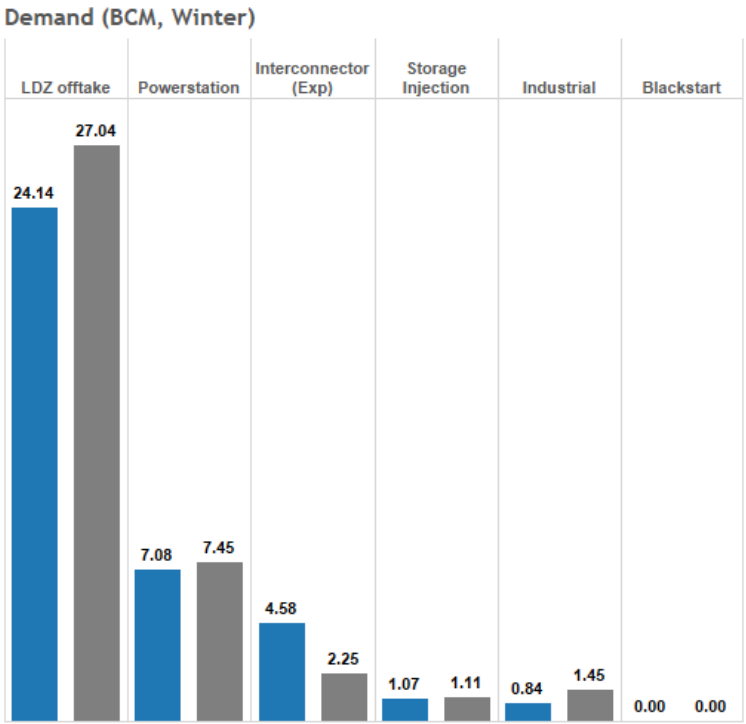
Components of NTS Demand



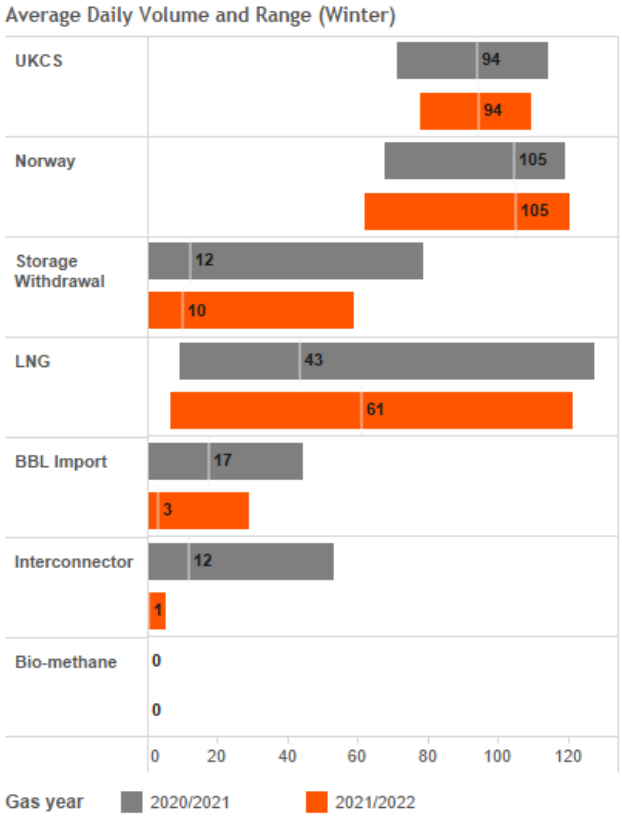


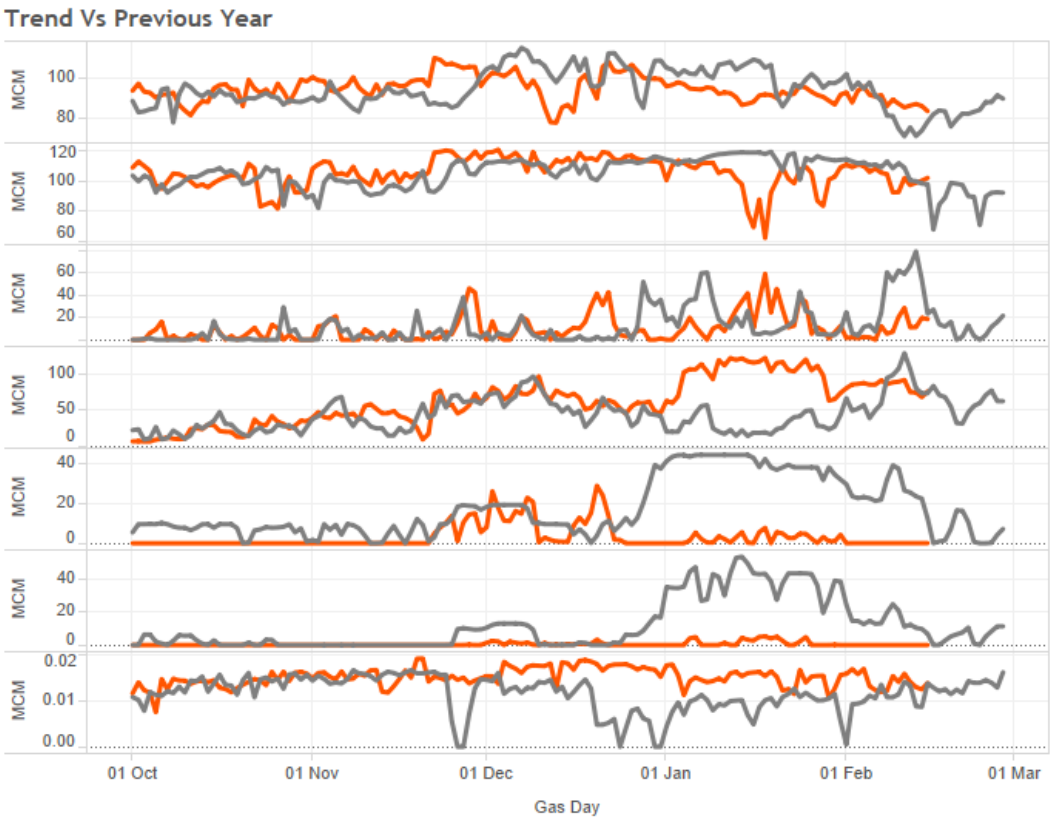
Demand – CWV & Components



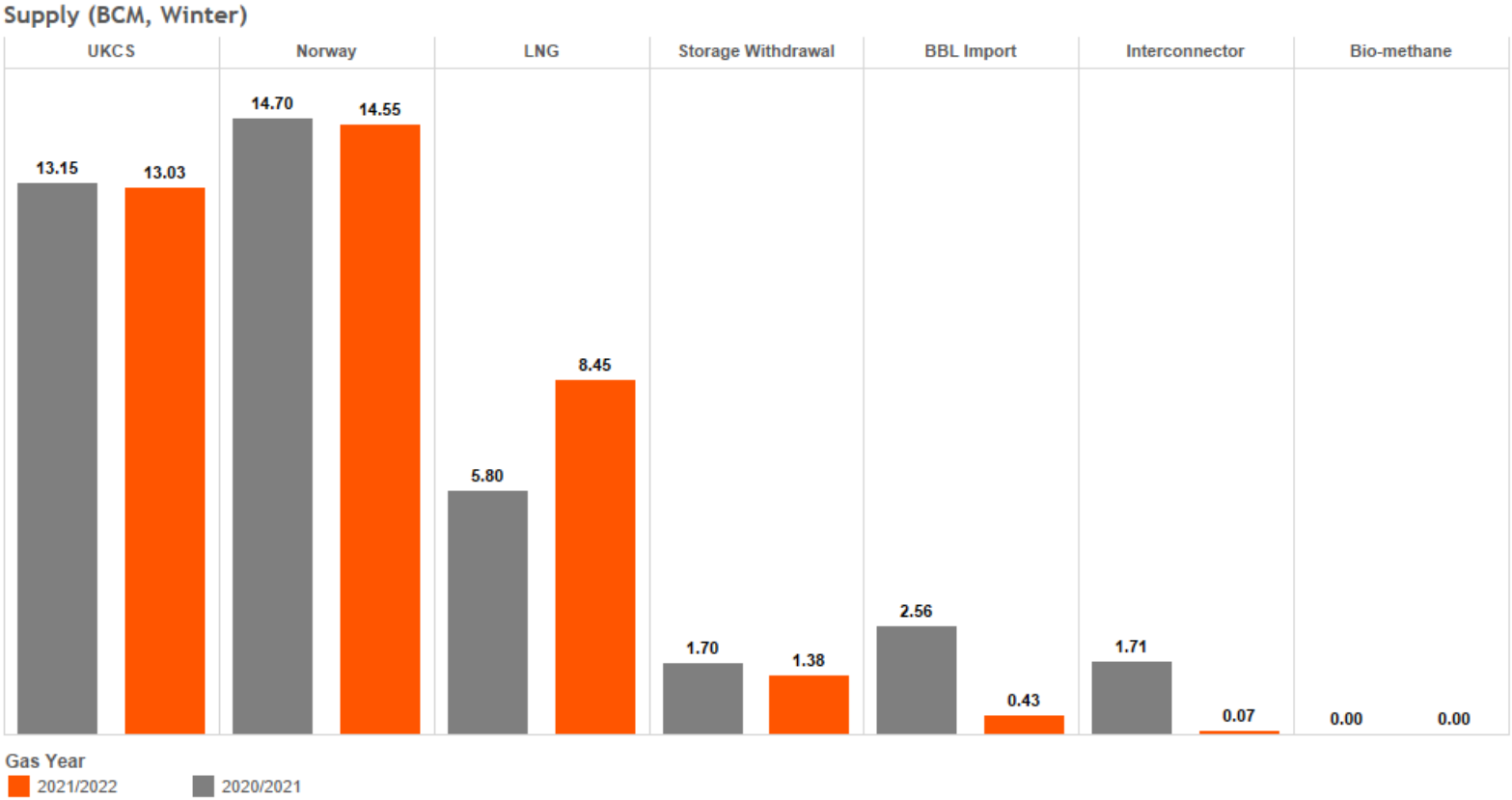


Components of NTS Supply



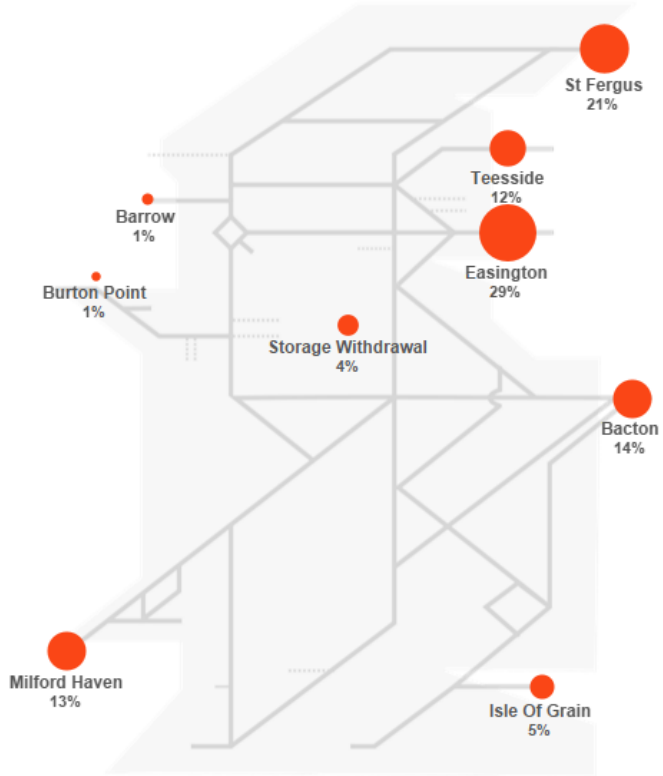


Supply - Components

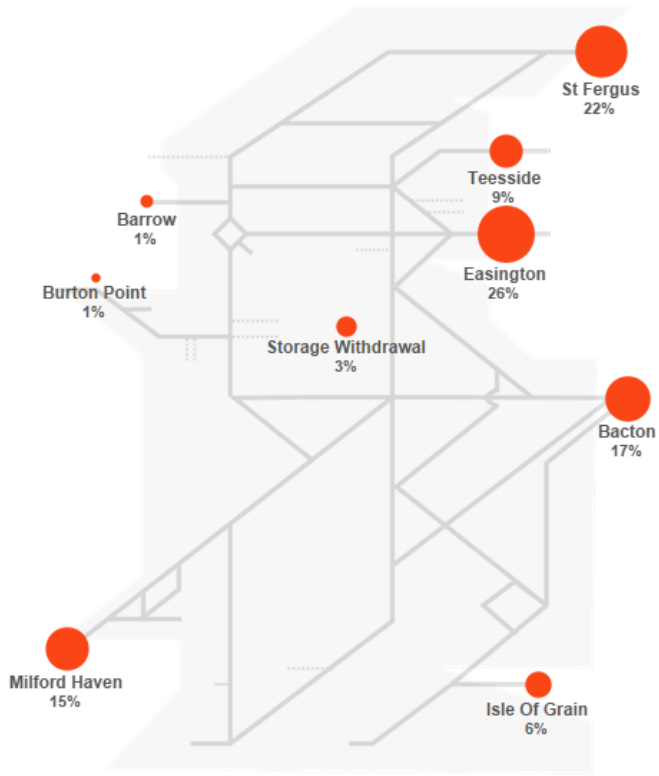


Supply Location

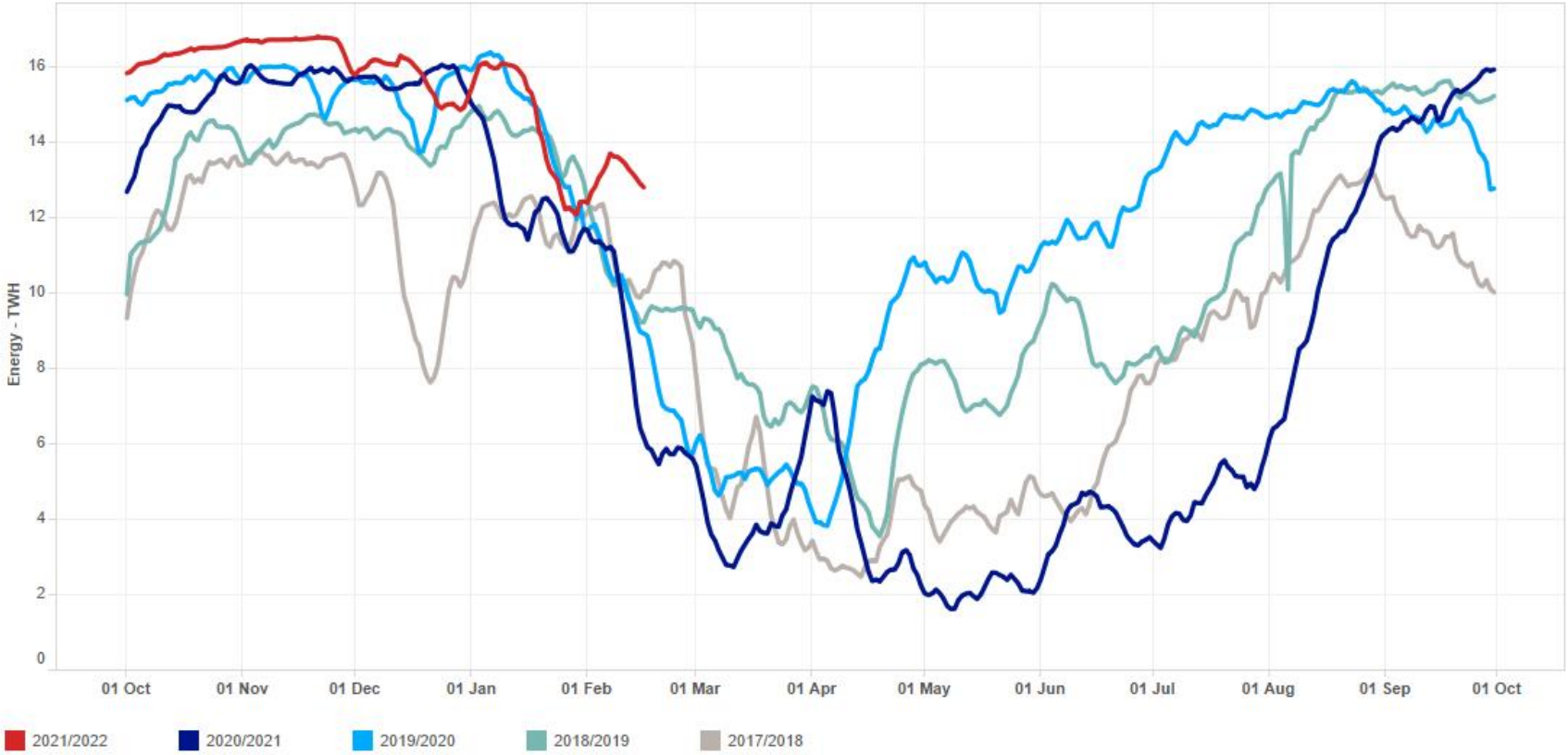
2020/2021 Percentage of total supply (Winter)



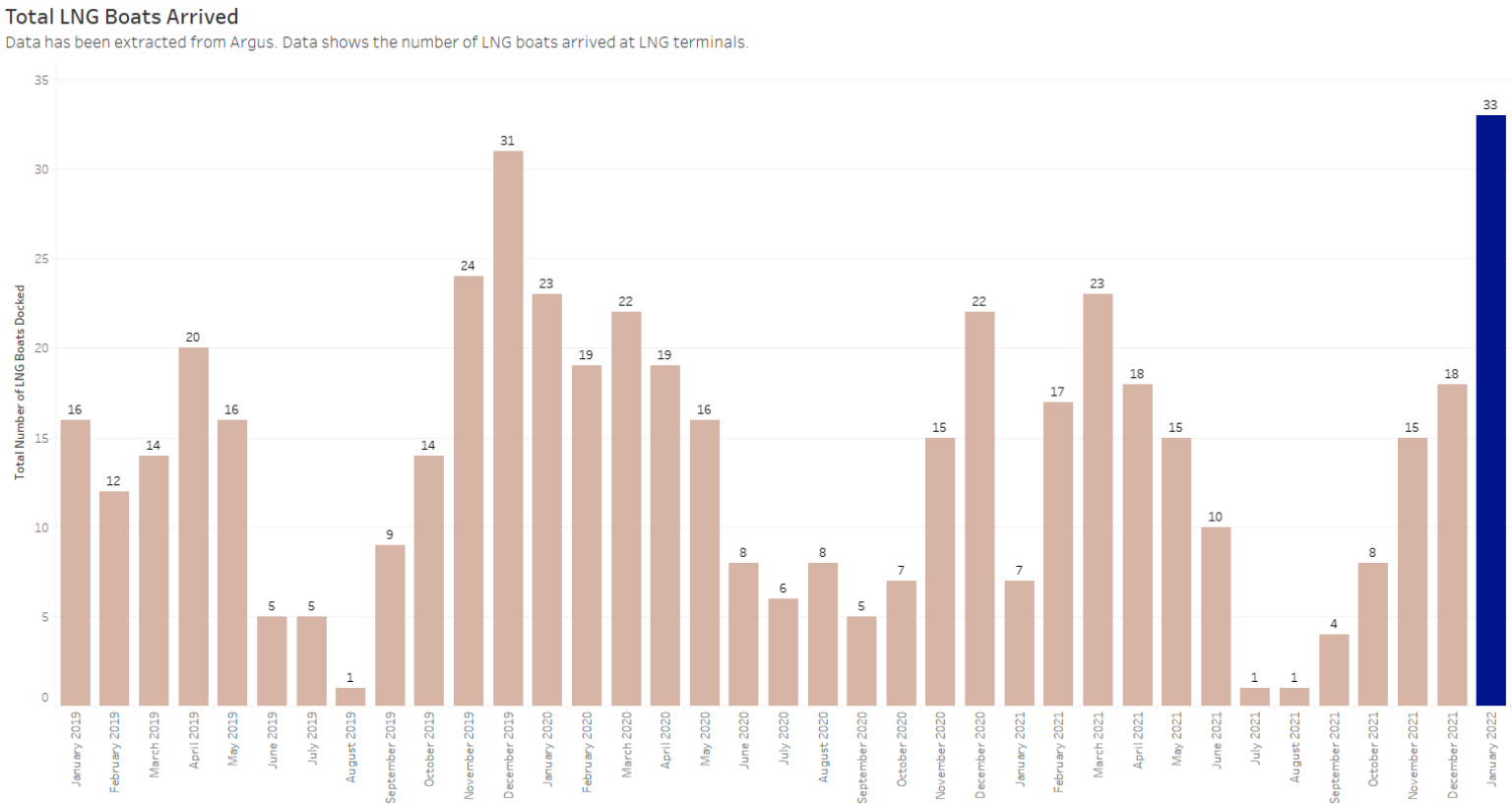
2021/2022 Percentage of total supply (Winter)



Medium Range Storage Stocks (MRS)



LNG Boats


Total LNG Boats Arrived
Data has been extracted from Argus. Data shows the number of LNG boats arrived at LNG terminals.
Total Number of LNG Boats Docked
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30
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16
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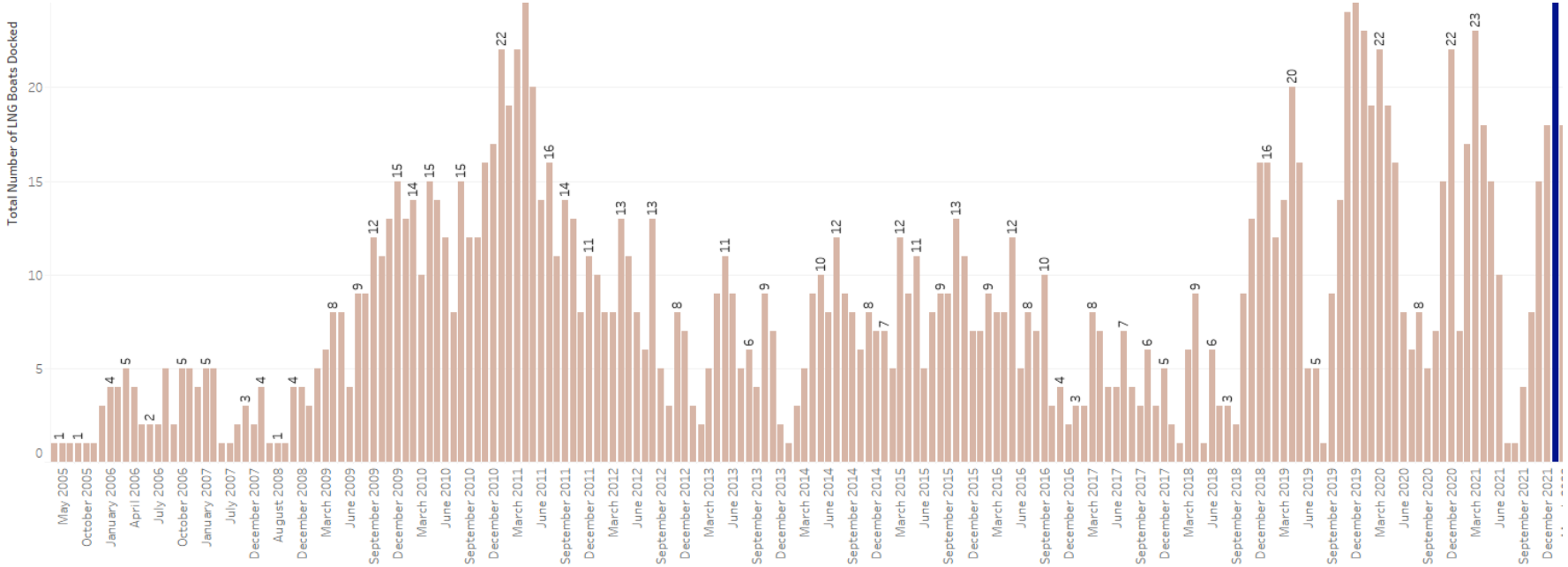
LNG Boats


Total Number of LNG Boats Docked
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December 2021

Focus Area: NTS Industrial Demand

- **Industrial Demand can be difficult to read patterns/trends from compared to other NTS loads, due to the high amount of variation between site types**
- **Well documented that higher gas prices have impacted Industrial demand, but they have not affected all Industrials in the same way**

Industrial Demand Main Categories

- **Combined Heat and Power Plants**
- These have often been built due to power an associated industrial plant at a better cost/power efficiency than taking electricity from the grid
- Can be broken down further into two sub-categories: those which purely provide power and heat to an industrial site (for example a paper mill), and those which are also capable of exporting electricity to the grid

- **Chemicals Plants**
- Process to manufacture various chemicals uses Natural Gas

Industrial Demand Main Categories

- **Manufacturing**
- Other types of manufacturing which also require large amounts of Natural Gas – for example Glass manufacture

- **Compressed Natural Gas (CNG)**
- Newer type of connection – Fordoun is the first of it's type to be connected to the NTS
- Compresses Natural Gas to transport via tankers (Fordoun gas supplies whisky distilleries)

Industrial Demand Main Categories

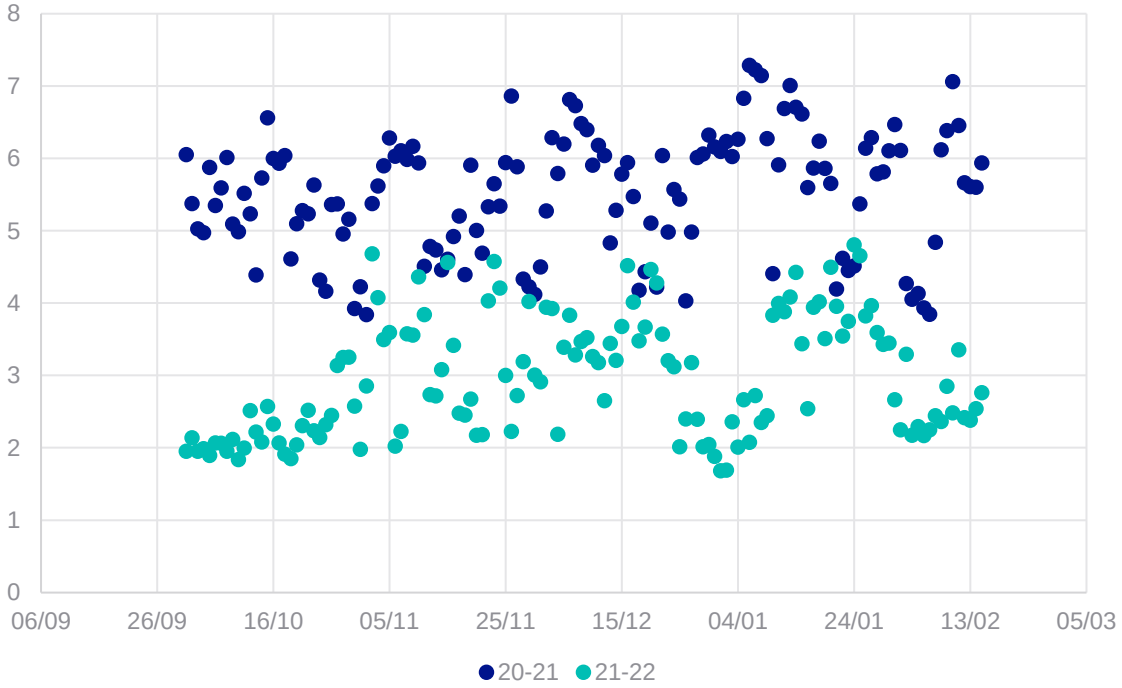
- **Blackstart**
- Gas made available for offtake at entry connections
- Could be for backup gas turbines, maintenance, operational purposes etc

Location

Majority of NTS Industrial Connections are in the North

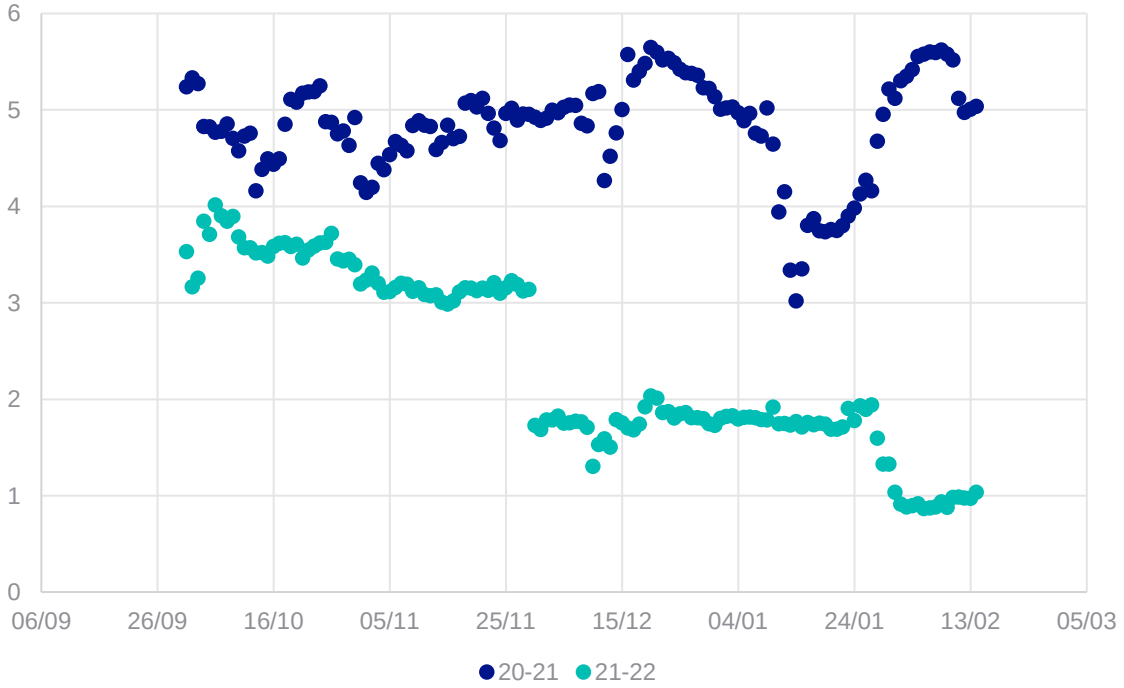
Teesside Region and North west have the most connections, and there is sometimes interdependency between sites in these industrial clusters

CHP Demand (mcm)



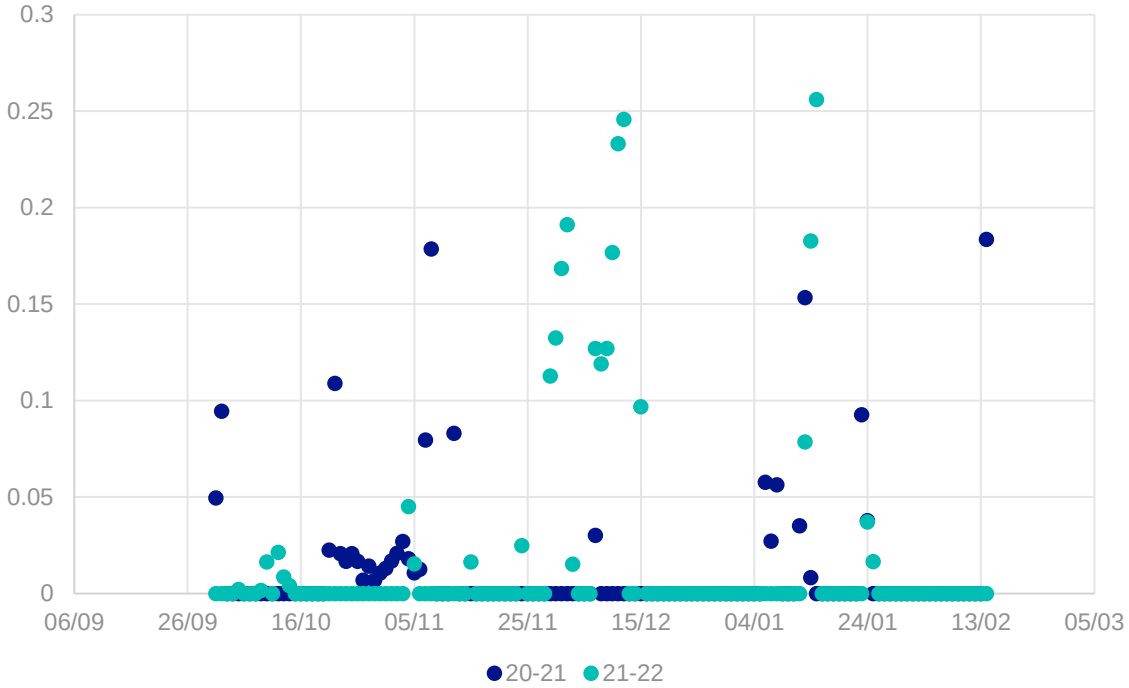
Lower Demands this year – could be partially related to gas prices and partly due to plants which are on reduced hours e.g. for IED (Industrial Emissions Directive)

Chemicals Demand (mcm)



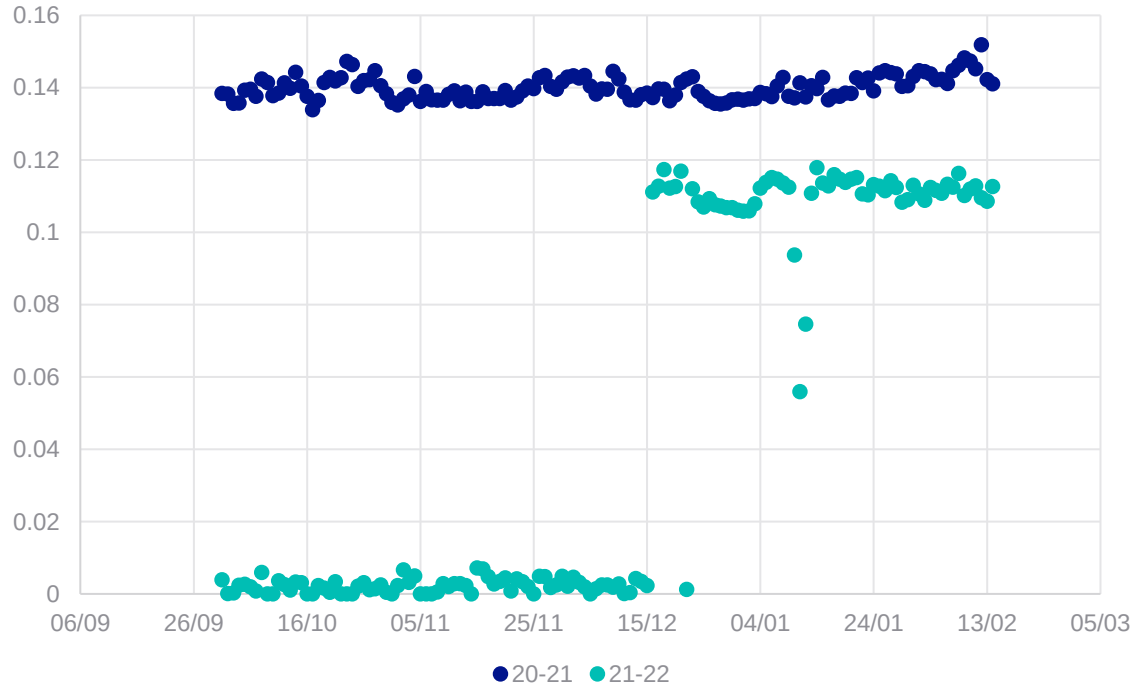
Combination of shutdown of sites and reduced offtake due to higher gas prices

Blackstart Demand (mcm)



Sporadic use of blackstart sites as not designed to be used for day to day operations

Manufacturing Demand (mcm)



More consistent demand patterns

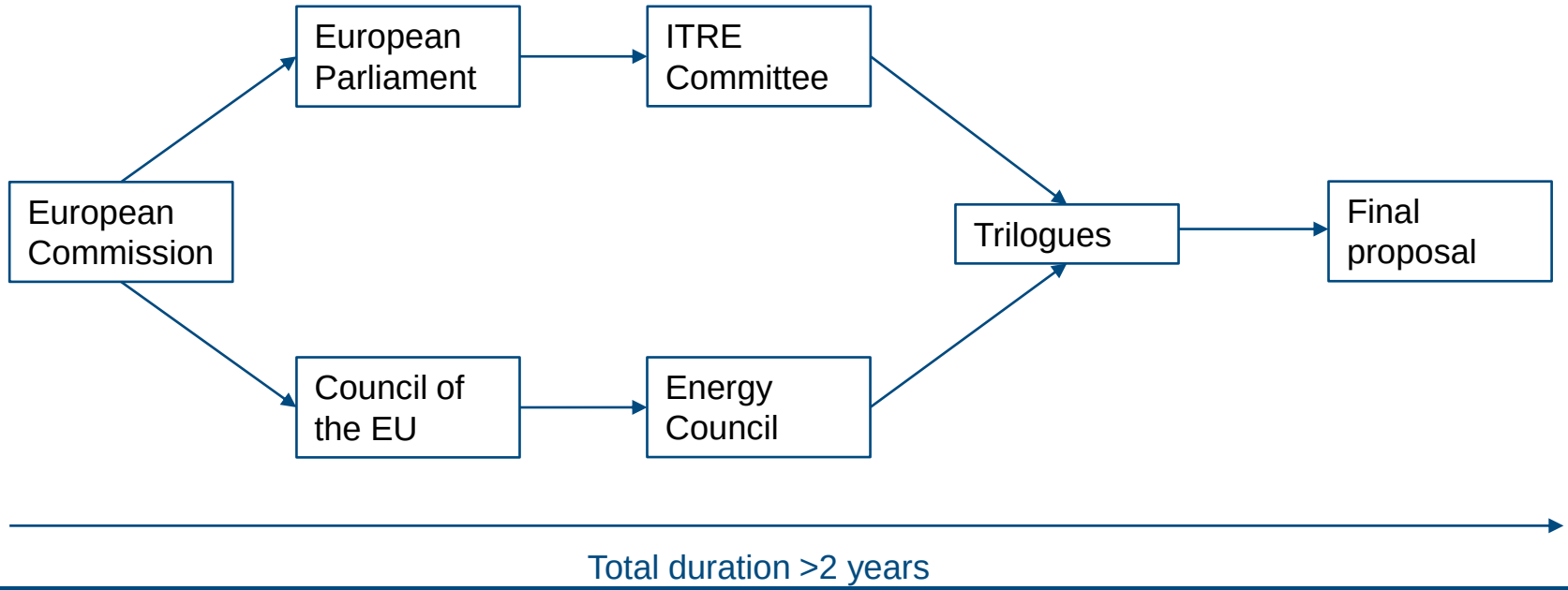
N.B due to very different sized connections – jump this year is from one site restarting operations

EU Hydrogen and Decarbonised Gas Markets Package

Euan McCarthy, Team Leader for European Gas Policy

Department for Business, Energy & Industrial Strategy

EU legislative process at a glance



Potential impacts on the UK

- **GB Security of supply:** continental interconnectors usually provide significant amounts of GB's winter gas supply and are a key source of flexible supply to manage winter demand.
- **NI security of supply:** The Northern Ireland (NI) and Ireland (IE) gas markets are both reliant on imports from GB. IE will be subject to the EU gas package, whereas NI and GB will not. Divergence between UK and IE/EU decarbonised gas markets may cause trade complications which could endanger the security of supply for NI because gas is supplied from the same supply point in GB to both NI and IE.
- **Green growth:** The EU's approach to decarbonising the gas system could generate or limit opportunities for UK industry to export hydrogen to, and import and store carbon from, the EU.
- **Natural gas markets and the costs of transition:** Given the UK is physically interconnected and sits in between EU territories, the EU's approach to continued to use of natural gas, the phase out of natural gas and how the EU proposes to manage the costs of transition will all impact the UK's gas markets.

Key elements of the proposals

- Security of supply: joint procurement and storage of gas stocks
- Open and fair competition in hydrogen markets
- Network costs and tariffs
- Hydrogen standards and Guarantees of Origin
- Gas quality standards and blending
- Methane emissions

Influencing from outside the EU

- **Building on shared interests with neighbouring countries:** shared infrastructure and trade with Ireland, Belgium and the Netherlands.
- **Showcasing UK expertise and thought leadership:** sharing the UK's Hydrogen and Net Zero strategies, dialogue on common policy issues such as high gas prices.
- **Public diplomacy:** panel events, workshops with European stakeholders speaking at conferences, etc.
- **Indirect influencing with trusted stakeholders:** National Grid, Ofgem and industry

Next steps

Detailed analysis and prioritisation of issues with relevance for the UK, including:

- Modelling potential impacts on European gas markets of multiple EU Member States jointly procuring gas or setting minimum levels of gas storage reserves.
- Working through the potential impact of Ireland participating in joint procurement of gas and role of NGG in facilitating transmission of gas from continent to Ireland.
- Understanding the impact of discounts on transmission tariffs for low-carbon and renewable gases on the UK.
- Modelling the potential impact of transmission-level hydrogen blending across the EU on imports into the UK via our continental interconnectors.
- Seeking views from across the gas value chain on the potential impacts of EU proposals on UK businesses and gas supply.

Project Union and East Coast Hydrogen

Emily Ly & Alastair Grundy

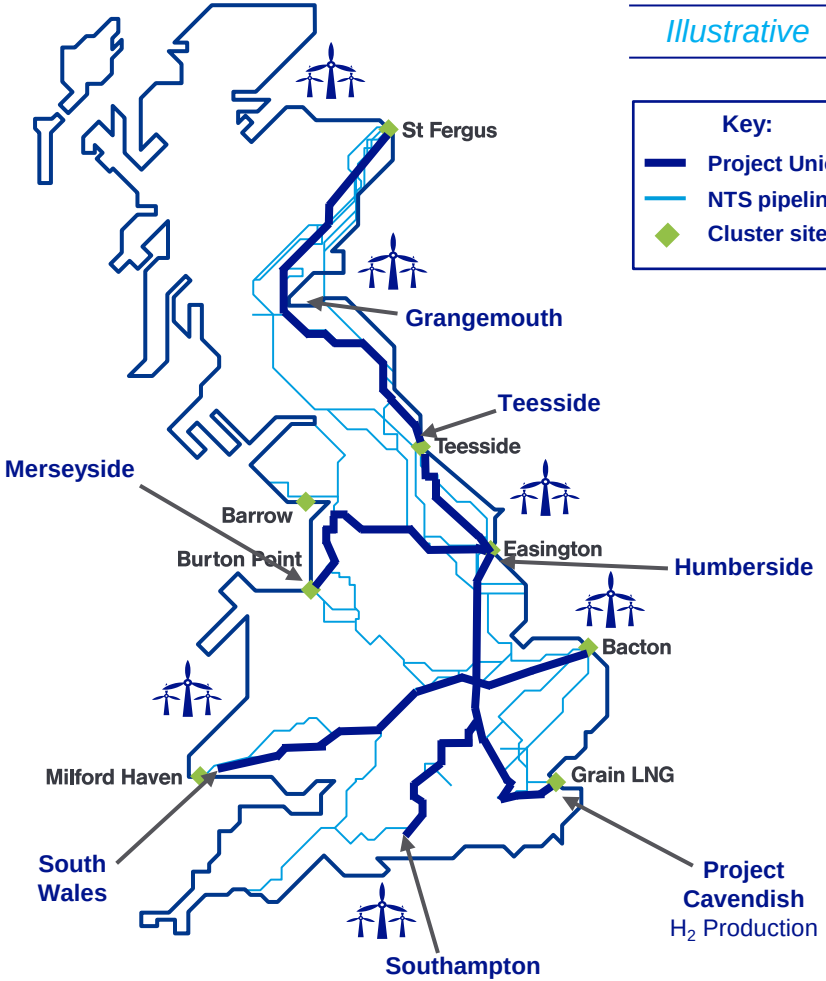
24th February 2022

nationalgrid

ProjectUnion

Project Union overview

- Development of a UK hydrogen “backbone” by repurposing ~2,000 km of existing assets (~25% of NTS today)
- Integral to delivering the UK’s hydrogen strategy
- Aligned to green and blue hydrogen developments and CCUS clusters
- Decarbonise heavy industry (e.g. steel, concrete, and glass manufacturers)
- Connect hydrogen production, demand, storage, and export centres



ProjectUnion

We cannot reach net zero without Project Union

Project Union is required for:

Decarbonisation of industry

- Without national transmission of hydrogen & CCUS, we will miss industrial net zero targets[1]
- **~50% of industrial emissions** are outside of the Industrial Clusters
- Project Union will provide **fair access** to green and blue hydrogen for these sites and **allow them to decarbonise**

Energy storage

- The UK will require **>100TWh** of hydrogen for **inter-seasonal energy storage** by 2050[2]
  - **There is no other option for storing sufficient energy**
- **Union is required** to move sufficient volumes in the network
- Additionally, **intra-day energy storage** requires line-pack within the NTS to manage intermittent renewable supply and demand

Connectivity and efficiency

- **Project Union connects green & blue hydrogen projects and industry clusters** together, enabling **greater system efficiency** through coordinated and shared infrastructure
- **Without Project Union** each cluster and project requires independent capacity to handle peak demand, resulting in **over-built, duplicate transmission and storage systems**

Market coupling

- **Project Union connects isolated production** sites to **enable competition, driving costs down** for consumers
- Access for producers to larger markets, enabling **faster scale-up and transition to net zero**
- Access to **import / export opportunities** to Europe and Ireland by mid-2030's (in support of Gov. Hydrogen Strategy)

Source: 1) UK Industrial Decarbonisation Strategy (March 2021); 2) Nilay Shah, Professor Imperial College

ProjectUnion

Project Union is a no regrets option for a green, equitable future

Levelling up, Job Creation

- **Provide fair access** to hydrogen infrastructure across the UK
- Enable **existing industries to decarbonise and continue to attract capital** as global investors target net zero
- Enable the hydrogen and CCUS economy**, with potential for >100,000 jobs** by 2050

Global Leader in Green Innovation

- Position the UK as a **global leader in Green Innovation** in a rapidly growing hydrogen economy
- **Attract technology developers and global investors** by getting the best value from our national infrastructure
- Enable a rapid scale up of a UK hydrogen industry, with the opportunity to export hydrogen capability globally

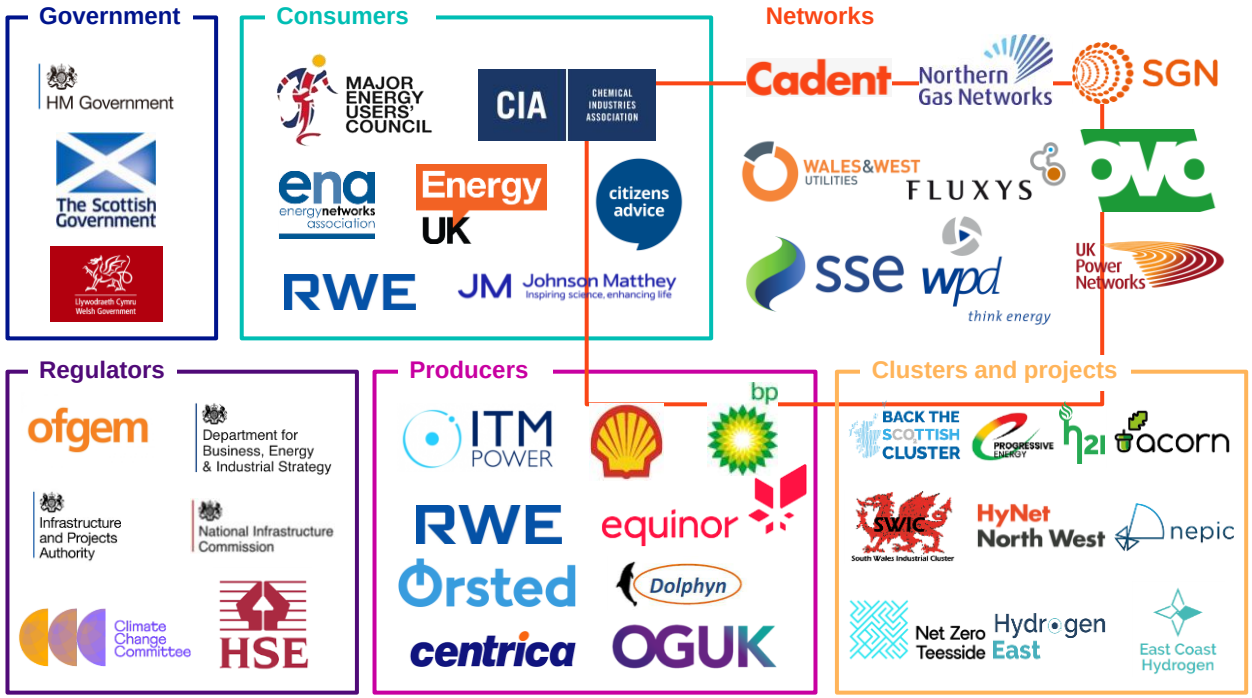
Providing flexibility and optionality

- **Near-term:** fastest and cheapest delivery option to deliver **flexibility in power generation, storage and consumption**, at a scale
- **Longer term: provides optionality** to future hydrogen decisions by government and consumers (e.g. expanding hydrogen distribution for heating in homes)

Project Union is critical for levelling up, attracting investment and providing optionality

ProjectUnion

We are engaging with a broad range of stakeholders…



Stakeholder feedback

"If you can create a market for green H_2, you're not locked into bilateral contracts... The NTS gives you a market and a business case where you can scale H_2 a lot easier with less risk."

Tom Johnson, RWE

"The chemical sector net zero roadmap depends on H_2 and CCUS. As technology as it stands today, electricity is just not part of the question for most CIA members - they couldn't do it"

David Mitchell, Chemical Industries Association

"Project Union has clear benefits to the clusters and H_2 projects. In a highly distributed system, each individual project has to meet peak demand. If you connect the hubs, you massively improve resilience between them and increases asset utilisation. "

Nilay Shah, Imperial College London

We have developed a targeted engagement programme

ProjectUnion

…and have received wide support for Project Union

Project Union is required to decarbonise industry and support levelling up across the UK

MEUC

"[Project Union] could **save industry a lot of money** and even **keep many of our members in business** - some companies would find electrification impossible and be forced out of business without this."

Eddie Proffitt – Major Energy Users Council

SWIC South Wales Industrial Cluster

"Project Union will **benefit UK manufacturing outside the first clusters**. The race to sustainability will be led by the clusters which get a head start **and global headquarters will then invest in areas with the infrastructure and benefits to get to net zero faster**. And this is already happening - We know a local company that has lost a large order for Jammie Dodgers to national super market based on the CO2 content in manufacturing"

Chris Williams, Wales Industry Group

Project Union is required to connect large-scale hydrogen production and energy storage

Ørsted

"Large-scale **green hydrogen will require national transmission and access to storage**. Having a backbone network connecting the dots allows the whole system to grow."

Rob Duncalf – Orsted

ITM POWER

"**By the mid 2030's we need significant access to storage for hydrogen**… The NTS can connect large scale renewable energy production to large-scale storage sites and help cover energy deficit periods in the winter."

Graham Cooley– ITM Power

Project Union will connect isolated markets together and drive competition

"Union allows you to **connect isolated hydrogen markets** and production points together to **create a level and fair playing field** and drive competition. "

Mike Copson – Shell

bp

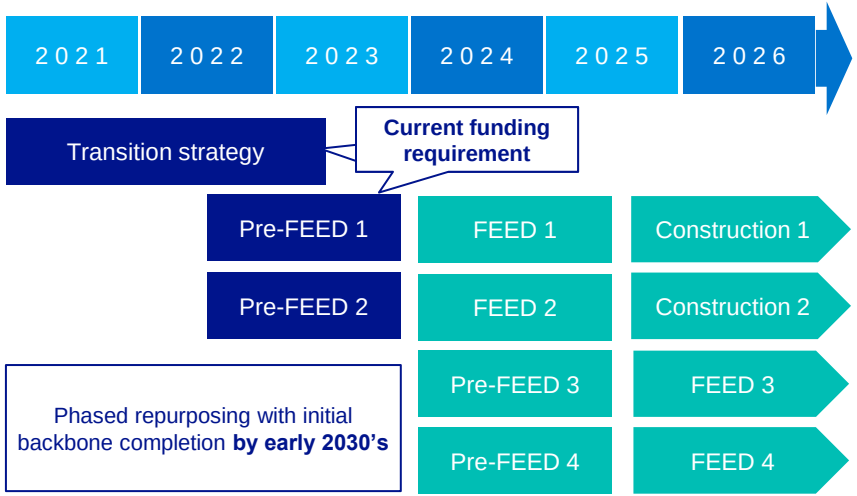
"Union would allow us to **connect to customers outside the clusters** and enable us to **scale production faster** and help support costs coming down"

Martin Foreman - BP

ProjectUnion

Delivery roadmap

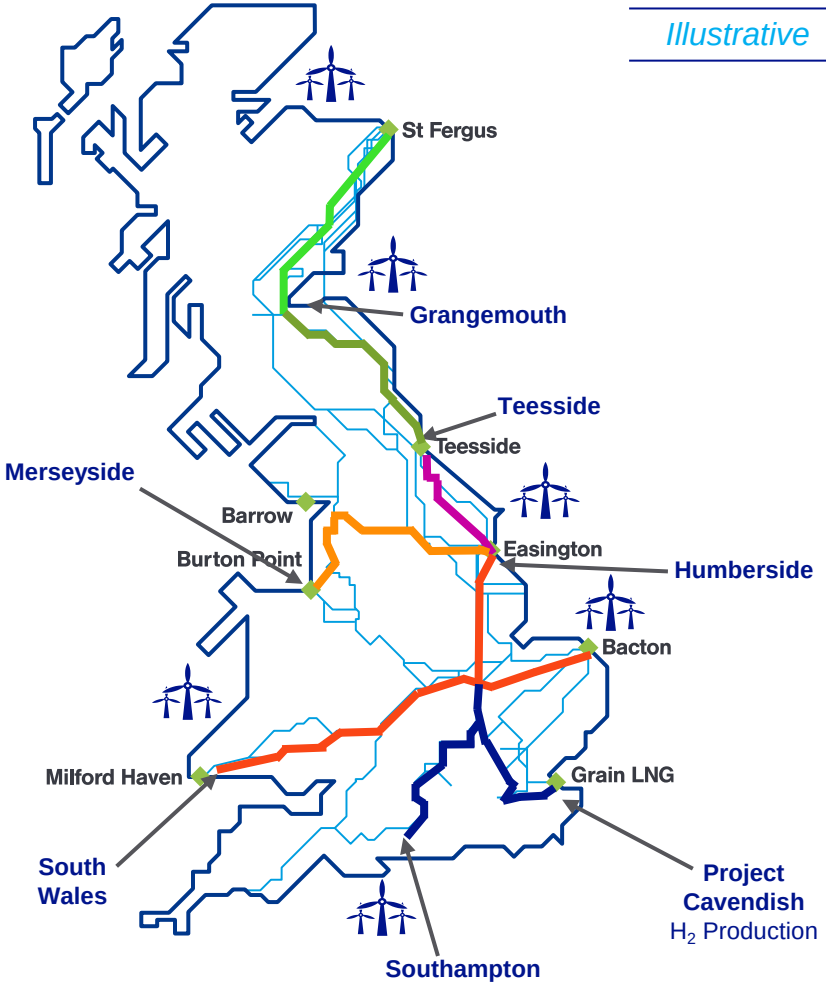
Project delivery timeline



Potential Routes *(illustrative)*

- St. Fergus – Grangemouth
- Teesside – Grangemouth
- Humber –Teesside
- Humber – Merseyside
- South Wales – Bacton – Humber
- Southampton- Cavendish

Illustrative



East Coast Hydrogen

East Coast Hydrogen

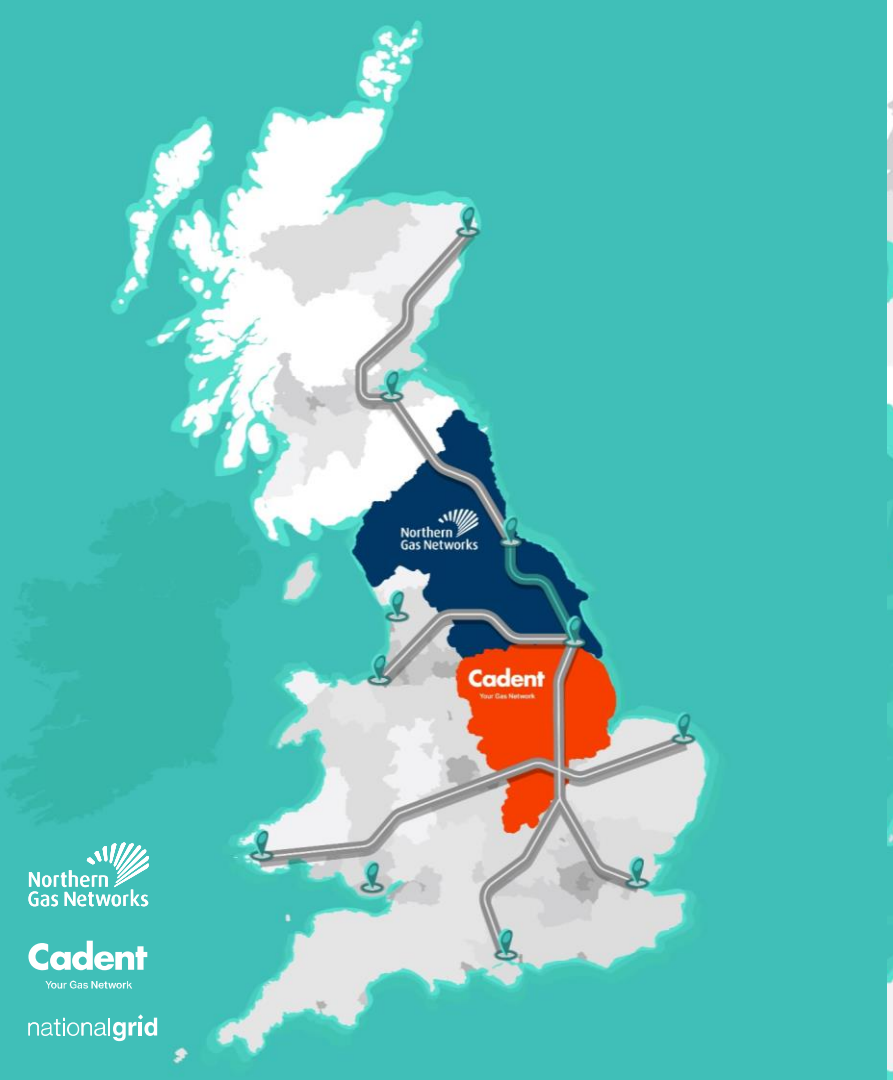
Bringing Hydrogen to You

Northern Gas Networks

Cadent
Your Gas Network

nationalgrid

December 2021



Northern Gas Networks

Cadent
Your Gas Network

nationalgrid

Phase 1
(2022 – 2026)
Completion of Pre-FEED, FEED Study and development of East Coast Cluster infrastructure

Phase 2
(2024 – 2030)
Connection of Humber and Teesside clusters, and growth into Yorkshire and East Midlands

Phase 3
(2028 – 2037)
Expansion from the industrial Clusters into Northern urban areas and the Midlands

Phase 4
(2032+)
Connection of the network into further regions and future growth opportunities

Expansion to Scotland
Carlisle
Newcastle upon Tyne
Teesside
Endurance CO2 Store
Penrith
Darlington
West Cumbria
North Yorkshire
Humber
Leeds
Bradford
Offshore Storage
HyNet
Scunthorpe
Grimsby
Viking & Bunter CO2 Store
Sheffield
Doncaster
Theddlethorpe
Nottingham
Derby
East Midlands Freeport
Leicester
Expansion to Bacton
Northampton
Expansion across Gas Distribution Networks

East Coast Hydrogen overview

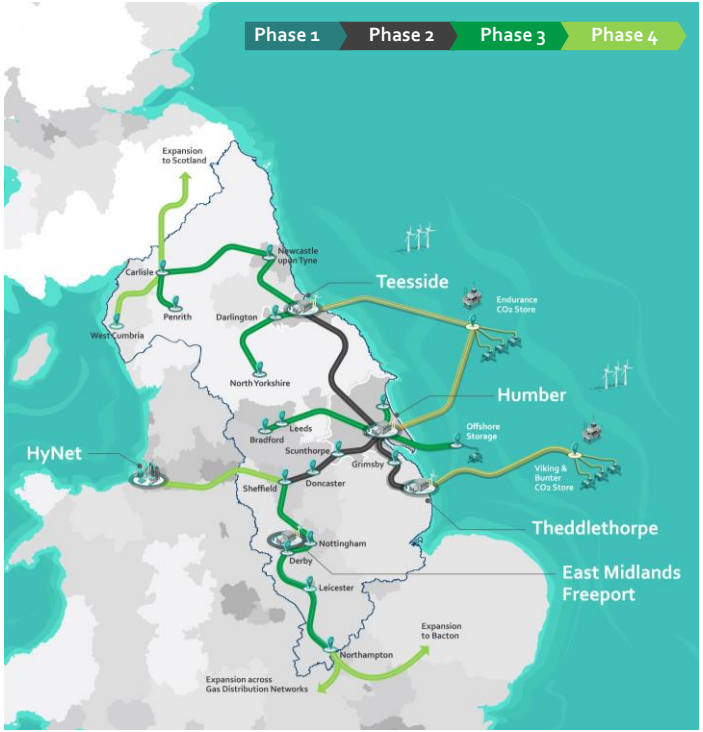
East Coast Hydrogen

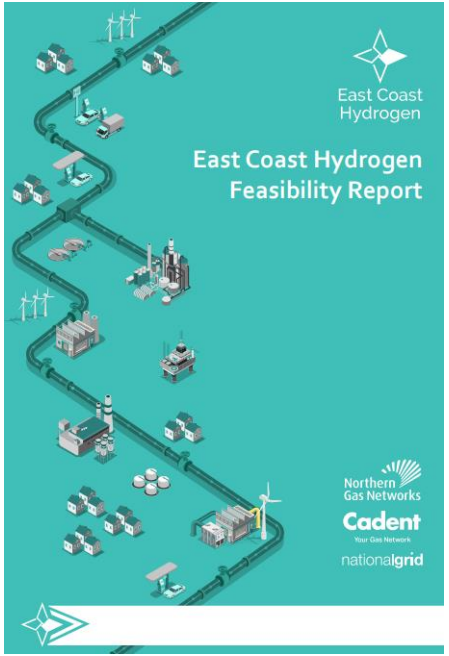
Connect hydrogen supply with hydrogen demand across multiple end use cases commencing with industrials fuel switching to hydrogen

Transport hydrogen through repurposed and new build pipelines to industrial users first with further potential to supply domestic users

Build resilience with the interconnectivity of the Humber and Teesside industrial clusters and storage facilities across the East Coast Hydrogen region

Support efficient market growth by balancing supply and demand and enabling connections across the East Coast Hydrogen region





Northern Gas Networks

Cadent Your Gas Network

nationalgrid

An introduction to East Coast Hydrogen

East Coast Hydrogen

East Coast Hydrogen is about being ready for UK Government decisions

- **UK Government has set a clear agenda for hydrogen** through the release of the UK Hydrogen Strategy and a number of funding options.
- With the announcement of Track 1 Industrial Clusters and many industries assessing the feasibility for running on hydrogen, **networks must be ready to get the hydrogen to where it is needed**.

East Coast Hydrogen is a blueprint for a GB wide conversion to hydrogen

- East Coast Hydrogen will look in detail at the specific **engineering requirements for network conversion in the region and will act as a blueprint** for regional conversion.
- It will **build on the successful innovation projects** delivered by Northern Gas Networks, Cadent and National Grid, including the Hydrogen Home and HyNTS.

East Coast Hydrogen is a perfect region to commence the national conversion

- East Coast Cluster represents up to **50% of the UK's industrial emissions and a concentrated proportion of the publicly announced hydrogen production**.
- The East Coast of the UK is **home to some of the UK's largest offshore wind sites** which provide a valuable opportunity for the production of green hydrogen.

Northern Gas Networks

Cadent Your Gas Network

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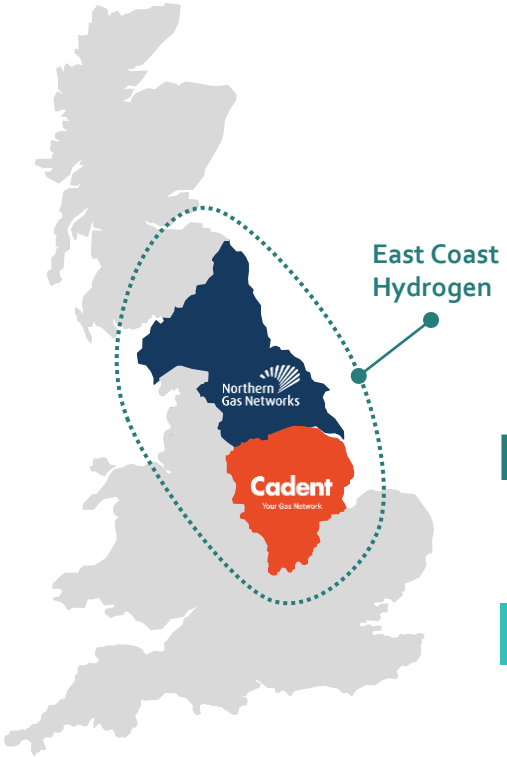
East Coast Hydrogen solves three major challenges

East Coast Hydrogen



1 **Industrial Decarbonisation**

2 **Residential Decarbonisation**

3 **Resilience and Interconnection**

Delivered across 4 phases…

Phase 1 (2022 – 2026)	Phase 2 (2024 – 2030)	Phase 3 (2028 – 2027)	Phase 4 (2032+)
Completion of the Pre-FEED, FEED study and development of 'shovel ready' projects	*Connection of Humber and Teesside clusters, and growth into Yorkshire*	*Expansion from the industrial clusters into Northern urban areas and the Midlands*	*Connection of the network into further regions and future growth opportunities*

East Coast Hydrogen could decarbonise large proportions of the energy system

Northern Gas Networks Cadent Your Gas Network nationalgrid

East Coast Hydrogen Stakeholder Consortium

East Coast Hydrogen

Upstream
Hydrogen production

BOC A Linde company
CPH2 Clean Power Hydrogen
ECO ENERGY WORLD
ITM POWER Energy Storage | Clean Fuel
uniper

Midstream
Transportation and storage

centrica storage
Navigator

Downstream
Sector-specific utilisation

Enertek International
sembcorp
TOYOTA
TRITON POWER
Vaillant

Cross-value chain
Hydrogen value chain participants

bp
EAST COAST CLUSTER
EQUANS EMPOWERING TRANSITIONS
equinor
DelpHYnus
kellas MIDSTREAM
SIEMENS energy
VPI

Local stakeholders
Regional and local partners

CATCH
D2N2
Greater Lincolnshire Local Enterprise Partnership
MIDLANDS ENGINE
North East Local Enterprise Partnership
TEES VALLEY COMBINED AUTHORITY
West Yorkshire Combined Authority

Northern Gas Networks
Cadent Your Gas Network
nationalgrid

Gas
Transmission

Emergency Planning

Heleena Chauhan
Emergency & Incident Frameworks Officer

nationalgrid

Exercise Disrupt

A series of industry events, sponsored by the E3C Gas Task Group, to examine and assure preparedness for the restoration of the gas network following an NGSE, leading up to a full simulated exercise in July 2022

- Industry Workshops Jan-Feb 2022
  - ✓ Network Entry Facilities
  - ✓ Major and Intensive Energy Users
  - ✓ Shippers
  - ✓ Electricity Generators (Gas Fired)
  - ✓ Public Interest Groups i.e. Citizens Advice/Local Resilience Fora
  - ✓ Governance: HSE, Ofgem, BEIS
- Operational Tabletop Exercise Mar-Apr 2022
- Communications Tabletop Exercise Apr 2022
- Process Enhancements Jun 2022
- Simulated Exercise ‘Disrupt’ July 2022

Emergency Curtailment Quantity (ECQ) Webinar

An industry webinar event sponsored by the E3C Gas Task Group, to examine and assure preparedness for the restoration of the gas network following an NGSE, with key focusses on:

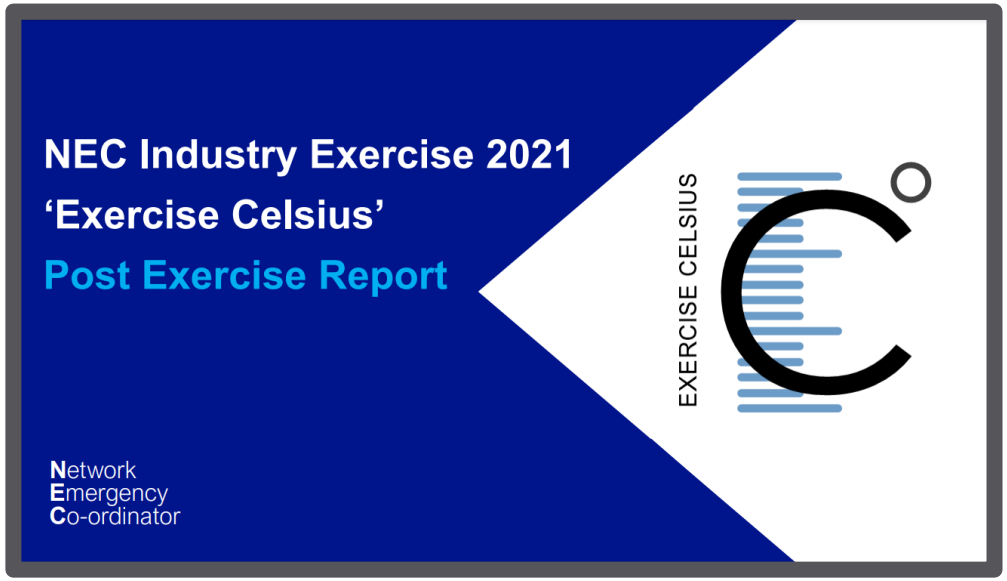
- Highlighting the emergency stages through to Restoration (Stage 4)
- Outlining the National Grid ECQ process
- Informing on the Local Distribution Zone (LDZ) ECQ process
- Providing information on P70 forms
- Post Emergency Claims (PEC)

The event will be held on **March 10th 2022 (10:00-12:00)**

Please register by visiting **Eventbrite**

Exercise Celsius Report

Post Exercise report for the 2021 NEC industry Exercise is now published on the National grid Gas NGSE webpage: https://www.nationalgrid.com/uk/gas-transmission/document/136386/download



Emergency Queries & Information

For any queries or questions on the Emergency framework contact gasops.emergencyplanning@nationalgrid.com

You can view a webinar recently delivered on the Emergency Framework in our ‘Shaping the Future’ series here:

https://players.brightcove.net/867903724001/default_default/index.html?videoId=6286129848001

Look out for the publishing of information relating to the 2022 NEC industry Exercise ‘D’, shortly

Gas
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GS(M)R Review Update

Martin Cahill
Senior Operational Liaison Officer

nationalgrid

GS(M)R Review Update

On 28 January, HSE published its impact assessment and consultation on proposals to amend the Gas Safety (Management) Regulations 1996

A guide to the Gas Safety (Management) Regulations 1996. Guidance on Regulations - L80 (hse.gov.uk)

The consultation is open for eight weeks until 21st March 2022, and can be accessed using this link:

https://consultations.hse.gov.uk/hse/cd291-revision-gas-safety-management-regulations

GS(M)R Review: HSE's Proposals

Changes to the gas quality specification in Schedule 3 of the Regulations

- Reduce the lower limit for Wobbe Index from 47.20 MJ/m^3 to 46.50 MJ/m^3
- Remove the Incomplete Combustion Factor parameter
- Remove the Soot Index parameter
- Introduce a Relative Density upper limit of 0.7
- Increase the upper limit for oxygen from 0.2mol% to 1.0mol% on below 38 bar systems

Other amendments to align the Regulations with today's network

- E.g. remove references to 'British Gas plc', recognise biomethane and LNG terminals

NGG Impact Assessment

- **A wider Wobbe range could mean a wider range of CV delivered to the NTS**
- **As part of our impact assessment, we therefore wish to consider the potential impact on CV shrinkage**
- **We have issued a questionnaire to all NTS entry terminal operators seeking views on how CV may change to inform our assessment**

NGG Contact: Philip.Hobbins@nationalgrid.com

Mercury Survey

- **Since the LNG storage sites closed, mercury content has not been a concern for NTS assets**
- **We have recently received enquiries from upstream operators about what level we would regard as acceptable**
- **Our understanding is that a limit of 10 µg/m^3 is typically specified for heat exchangers in industrial and power plant which are often constructed of aluminium alloys**
- **We therefore included a guidance limit in the latest Gas Ten Year Statement of 10 µg/m^3 although we do not at present specify a limit for mercury content in our connection agreements with NTS terminal operators**
- **The survey closed on 21 Feb – there has been a lot of interest in this and we will be issuing results shortly**

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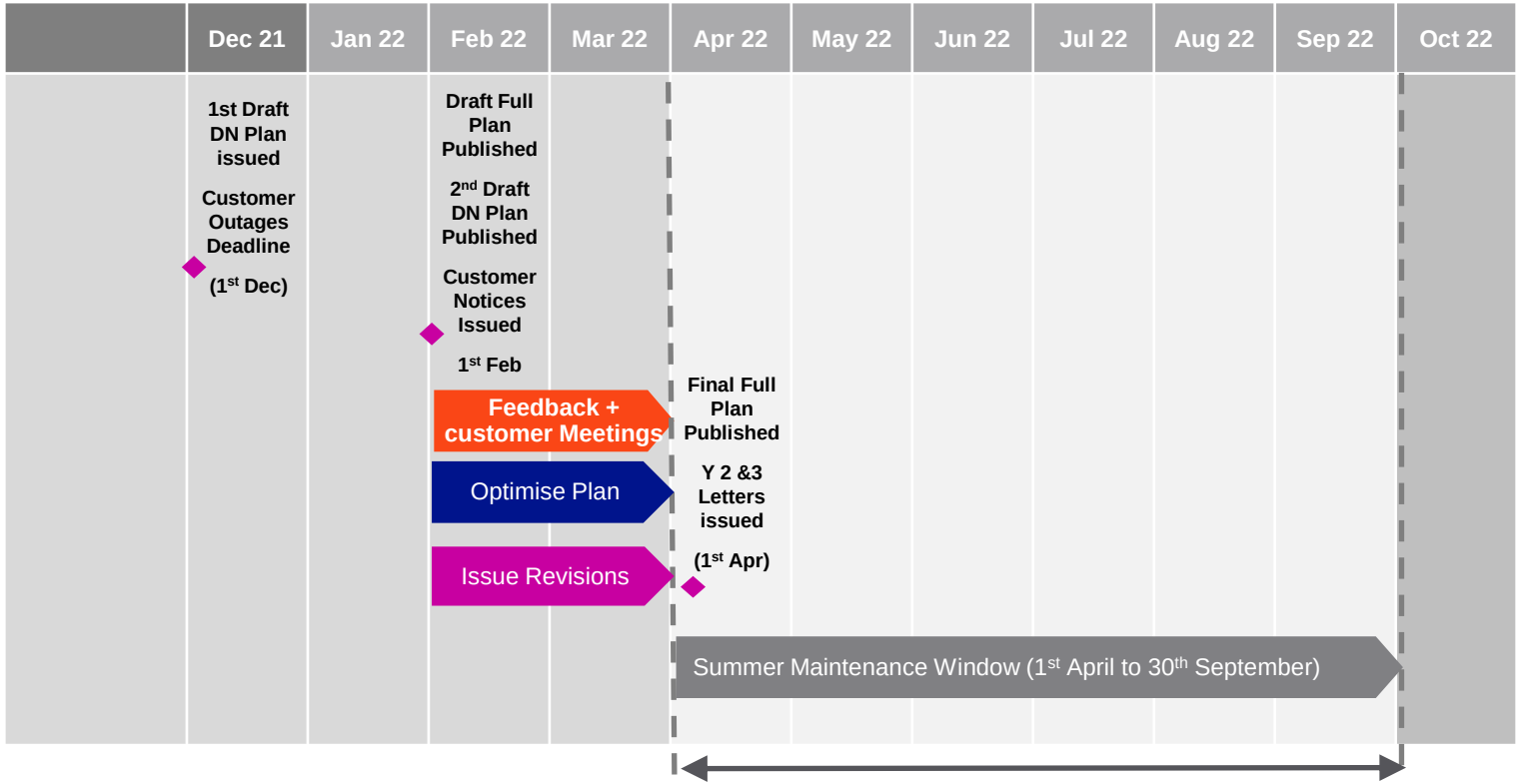
Maintenance

Martin Cahill
Senior Operational Liaison Officer

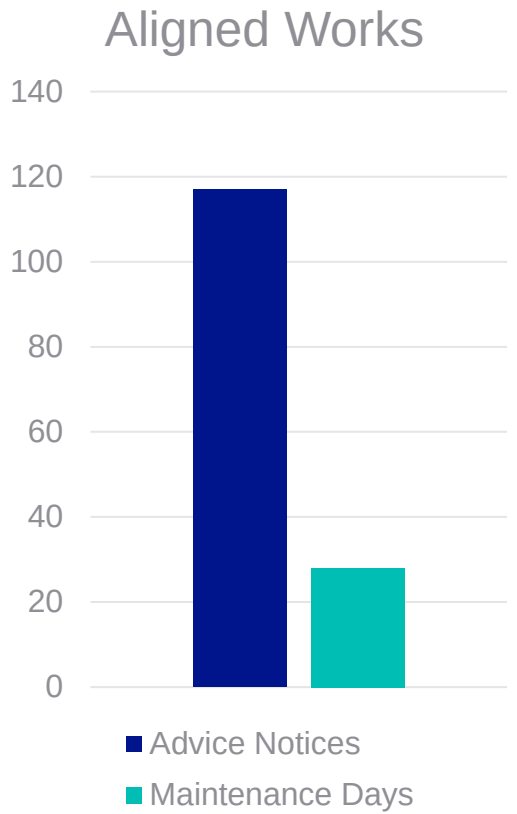
nationalgrid

Yearly Maintenance Planning Programme



Reducing Impact

- Customer Outage Information Requested
- Where possible we will always align impacting work to an outage
- Impacting work discussed at earliest possible point, followed up with first formal notice in January
- Adjusted notices issued where possible
- 8 Week Reminder of Work
- 7 Day Reminder

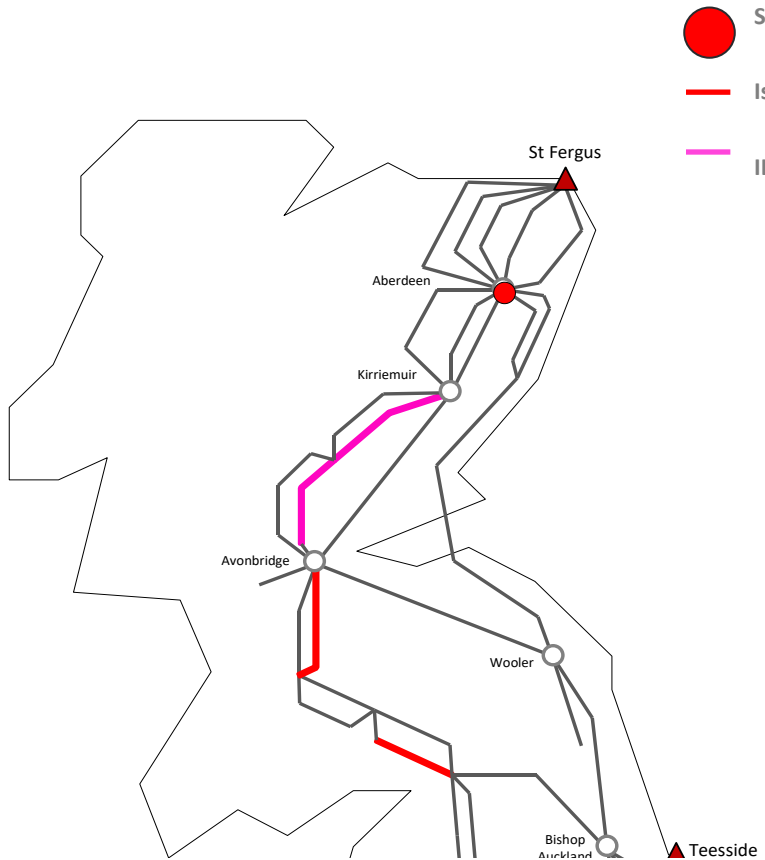


Scotland Work

Aberdeen Outage will last for the majority of the summer

Isolations on West Coast Route towards back end of summer

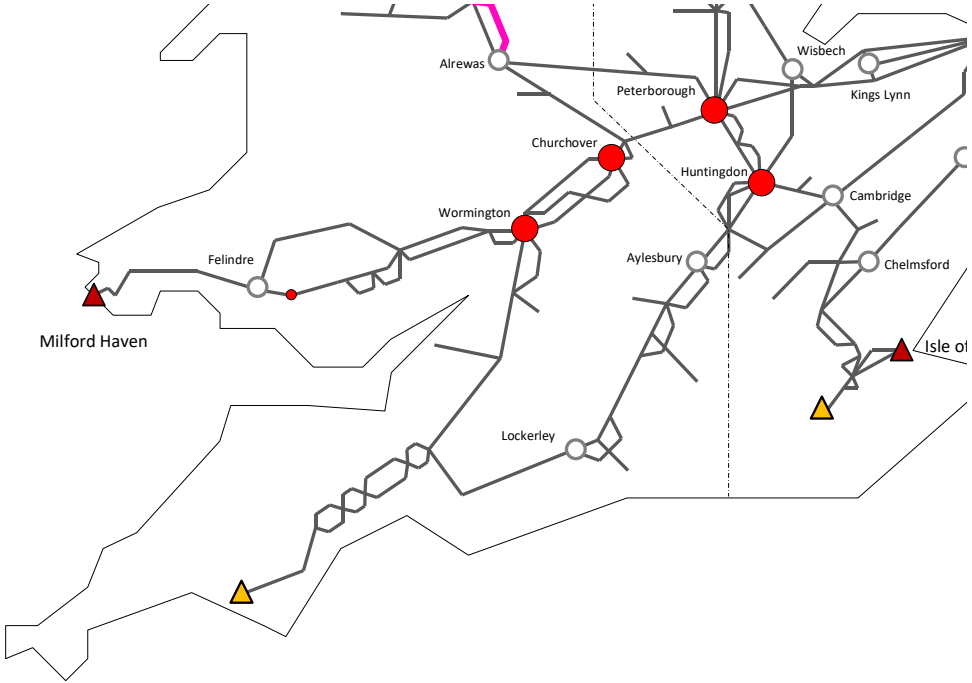
East Coast Transmission Strategy



South Wales Work

Wormington and Churchover outages planned during early summer months

Other work, including Felindre outage, isolations and ILI runs



Maintenance Plans + Further Information

Maintenance Plan will be published by 1st April:

https://www.nationalgrid.com/uk/gas/market-operations-and-data/maintenance

This includes the indicative capability at each Terminal with maintenance taken into account

Please note there is scope to move work around when higher flows are likely – capabilities not set in stone

Gas
Transmission

Information Provision & Digital Strategy

Joshua Bates
Operational Liaison Manager

nationalgrid

Why is Digital Strategy important?

How important is open source data to your company

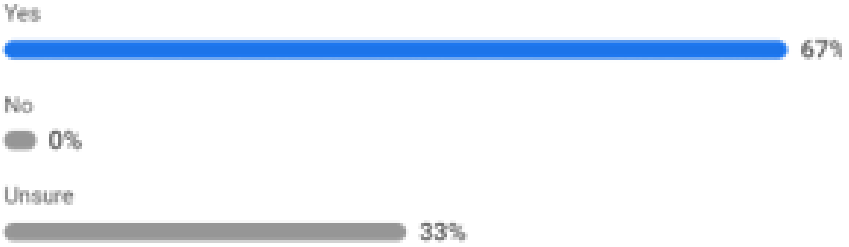
Please explain why

Have a rich set of data that can be used to supplement and add clarity to industry data is key to aid in understanding and enable informed decision making.

Allow innovation both within gas and across industry

Enables innovation and data synergy across companies and industries.

Does your company have a digital strategy?



National Grid Digital Strategy

Optimised System Operator

We will utilise **smart tooling** to help us understand the **drivers** and **behaviours** of our customers and the **impact** of our **actions** and **decisions**.

Operations Enablement

Our Plant Operations field force will be **empowered** to make the **right decisions** and have everything they need on their **mobile** devices

Data Driven Asset Management

We will collate **more data** on our assets than ever before and use this to **understand risk** and make **informed decisions**.

Regulatory Change

We will deliver **system changes efficiently** to **enable a** more **effective commercial regime**.

Market & Customer Insights

We will have **clear processes** and provide greater **understanding** of our **interaction** with customers and their needs .

Data, Insights & AI

We will have more **analytics capability** than ever before and use this to make more **data driven decisions**

National Grid Digital Personas

Energy Insiders

Enquiring Minds

Network and Asset Decision Makers

Policy Influencers

Energy Insiders

Who are they?
Energy Insiders are groups that work in the energy industry. This group will include other network companies and immediate users of our assets and systems. They will be technically savvy about energy data and utilise it in their own activities.

What motivates them?
This group want to use data to inform their day-to-day operations as well as their long-term investments and decision making about their activities. Newer entrants want to be able to compete in the market and use our data to help them.

What data do they want?
Energy Insiders want detail about their connections to our networks. They want to understand where our assets are and what that means for them. They need operational data on how our networks are running.

Behaviour and preferences
Because of their familiarity with the industry, many Energy Insiders will have quite technical needs. They can handle complex datasets and may require Application Programming Interfaces (API) in order to retrieve data directly. However, smaller/newer entrants to the market must be accounted for too. Some of this group will know how to request new datasets, but others may need signposting. They will often need named contacts in the company so they can talk to us directly.

Enquiring Minds

Who are they?
Enquiring Minds are interested in our assets and networks but may have unique needs for accessing our data. This could include members of the public, academia and wider energy innovators.

What motivates them?
This group want to use our data (often combined with other data sources) to answer wider questions they are interested in.

What data do they want?
Enquiring Minds want detail about our assets and the operations of our networks. They may be particularly interested in where our assets are. They want our data to be easy to combine with other data sources. Innovators and academia may want to gather large historical datasets and have access to APIs. They may want access to novel datasets that are not currently published.

Behaviour and preferences
This group may not know where to start, with more guidance and sign-posting required to available datasets. Non-technical language will be required to explain what datasets are, where they come from and any potential limitations. They may not be familiar with how to talk to us or be sure how to request new data. Enquiring Minds might find our datasets through search engines instead of coming to us directly.

Network and Asset Decision Makers

Who are they?
Network and Asset Decision Makers are often part of NGET/NGGT or companies that work closely with us (e.g. distribution companies, system operators and our contractors). They are responsible for making decisions about assets, work on those assets and the operation of the network.

What motivates them?
This group want to be able to trust they are using the right data and that it is accurate and consistent. They need to access data at the best place to support their ways of working and don't want to have to hunt for it.

What data do they want?
Network and Asset Decision Makers will require access to a large number of different datasets to support their activities. This will include details on assets and their condition, investment records, operational data, and performance and risk data about our business.

Behaviour and preferences
This group will usually know want they want and do not want to go searching for it. Data should appear in their day-to-day processes and provide them certainty about what is happening. They want to be able to correct errors in data easily and have assurance they can trust what the data tells them.

Policy Influencers

Who are they?
Policy Influencers will tend to work in organisations such as regulators and other government departments interested in energy. They may also include other influential organisations such as consumer groups and the Electricity System Operator.

What motivates them?
This group want to be able to access data that supports them in their strategic oversight of the energy industry as well as having access to data to inform long-term policy. They may also want to use our data in their wider service to the general public.

What data do they want?
Policy Influencers will require access to regulatory reporting data to ensure we're meeting the requirements of our regulatory framework. They may also be interested in larger and longer-term datasets to help inform their analysis and decision making.

Behaviour and preferences
This group will expect consistency in datasets and want to be sure they are interpreting our data correctly. This group can be diverse in their understanding of how the energy industry operates and may need appropriate sign-posting. Groups not directly working with us regularly will want key datasets to be easy to find.

National Grid Digital Workstreams & Projects

Optimised System Operator

- New demand forecasting models
- GCS Refresh
- Gas Control Room Enhancements
- Telemetry Re-opener and Satellite Replacement

Operations Enablement

- Field Force Devices
- DWM Phase 2 & 3
- Asset Protection Service

Data Driven Asset Management

- Digital Content Management
- Asset Performance Management
- Digital Asset Management

Regulatory Change

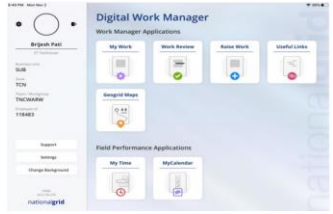
- Regulation Changes
- Gemini Replatform (Apollo)

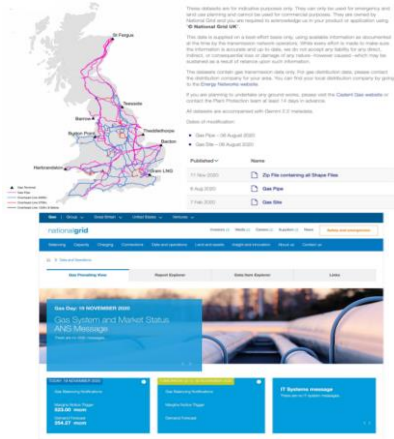
Market & Customer Insights

- Data triage process
- New data sets
- National Energy System Map
- Decision making process for new data

Data, Insights & AI

- Data Platform
- People Capability





Field Force Enablement | Connections Portal | Visibility of Infrastructure and Assets | MIPI refresh

National Grid Digital Strategy

For more information on the National Grid Digital Strategy including;

- **Risks**
- **Governance**
- **Investment Roadmaps**

Please visit https://www.nationalgrid.com/uk/gas-transmission/document/134081/download

National Grid Digital Strategy

Data Triage (Live) – adding more data

Keadby2 power station – addition of data

Fordoun industrial site – addition of capacity data

Changes in AOF report – to publish total NTS physical flows (D+6) & NTS demand (D+6))

ENTSOG – to comply with ENTSOG updated processes

BASF – Data flow from new BASF Industrial meter ID

UNC752 – new data associated with weekly auctions (booked and available capacity)

UNC755 – modified data associated with partial assignment of Capacity

UNC759 – Entry & Exit allocations updated data flow

Operating Pressure data request – approved - provide non-customer specific data at certain points in the Bacton region (Data Triage Process)

Single Bacton Exit Point Reporting – result of the new combined IP site at Bacton

Data Discoverability – ease of retrieving data

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Updates

Sam Holmes
Operational Liaison Analyst

nationalgrid

Gemini Regulatory Change

nationalgrid

Implementation of NTS Capacity related UNC Modification 0785

Work has commenced on UNC0785 to introduce competitive auctions at an aggregated exit point for Bacton IPs. On approval, this change will be become effective for Gas Day 01st March 2022. The first applicable auction will be rolling day ahead auction on the 28th February 2022.

UNC0785	**Application of UNC processes to an aggregated Bacton (exit) Interconnection Point** The system implementation of UNC Modification 0785 will be a two-part delivery: ✓ Part A is scheduled for the 25th February 2022 ✓ Part B is scheduled on the 3rd April 2022

The Change Pack describing system changes related to UNC Modification 0785 has been issued on 14th February 2022. Please view details on the following Change Pack (xoserve.com)

Please see UNC Mod 785 Awareness Training Module
https://rise.articulate.com/share/SrEQ_fu1c8_w9B9y5U4un82knjLSjOag#/

Implementation of NTS Capacity related UNC Modifications 0752S, 0759S and 0755S

Work to deliver the associated Gemini system changes required to implement the following 3 Modifications on 24th April 2022 is progressing.

UNC0752S	**Introduction of Weekly Entry Capacity Auctions**
UNC0759S	**Enhancement to NTS Within-Day Firm Entry and Exit Capacity Allocations**
UNC0755S	**Enhancement of Exit Capacity Assignments**

The Change Pack has been issued on 17th January 2022. Please view details on the following January Change Pack (xoserve.com)

User online Awareness Training will take place on 29th March 2022 between 10-12am. Registration details will be communicated closer to the time.

Communications

For further information please visit:

- Xoserve website at Gemini changes overview (xoserve.com)
- Please email: Geminichanges@correla.com

or contact Gas Markets Team:

Malcolm.Montgomery@uk.nationalgrid.com (UNC0785)

Anna.Stankiewicz@nationalgrid.com (UNC0752S, 0755S and 0759S)

Gemini Sustain Change

nationalgrid

Single Sign on (SSO)

Overview of SSO

The aim is to simplify the login for Gemini Online Screens, therefore creating a better User experience

- This change follows feedback from the industry about the current need for 2 sets of IDs and passwords (Gemini Citrix and Gemini Application) to log in to the Gemini system.
- It will deliver a single sign on experience with Multi Factor Authentication (MFA) method available over the internet
  - ✓ Along with self serve password reset ability
- This will remove the use of XP1 tokens following implementation

XP1 (RSA) Tokens Expire Next Week:

- The current set of XP1 (RSA) tokens will expire on 28 February 2022. Please ensure your new tokens are activated by this date. If you haven't received a new set of tokens, please contact customerlifecycle.spa@xoserve.com as these are required until SSO Go Live

Project Progress

User Trials is starting on 28th February 2022 to 25th March 2022.

Please see pre-requisites below:

- Active Citrix ID with a matching Gemini application login ID
- Citrix workspace app version 1809 and above, if using a receiver client
- Standard Web browser supporting HTML5
- Microsoft or Google authenticator app on Android/iOS phone

The closing date for participation in the trials was 9th February, we are sorry that we are unable to add anyone else after this date.

For More Information:

There is a short video on **Gemini Single Sign-On change (xoserve.com)**, which you may find useful to share with your Gemini Users

Gas
Transmission

Close

Joshua Bates
Operational Liaison Manager

nationalgrid

Next Forum

The next Gas Operational Forum will take place on the 31 March

Please send any topic requests to:

Box.OperationalLiaison@nationalgrid.com

Register now at:

In Person
https://www.eventbrite.co.uk/e/operational-forum-march-in-person-tickets-275538873187

Online
https://www.eventbrite.co.uk/e/operational-forum-march-online-tickets-275539364657