Gas
Transmission

Gas Operational Forum

Clermont Hotel & MS Teams
20th October 2022
10.02am

Questions
SLIDO = OPSFORUM

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Introduction & Agenda

Rachel Hinsley
Operational Liaison & Business Delivery Manager

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Presenters

National Grid Gas

Rachel Hinsley - Operational Liaison & Business Delivery Manager

Bridget Hartley - Head of Operational Delivery

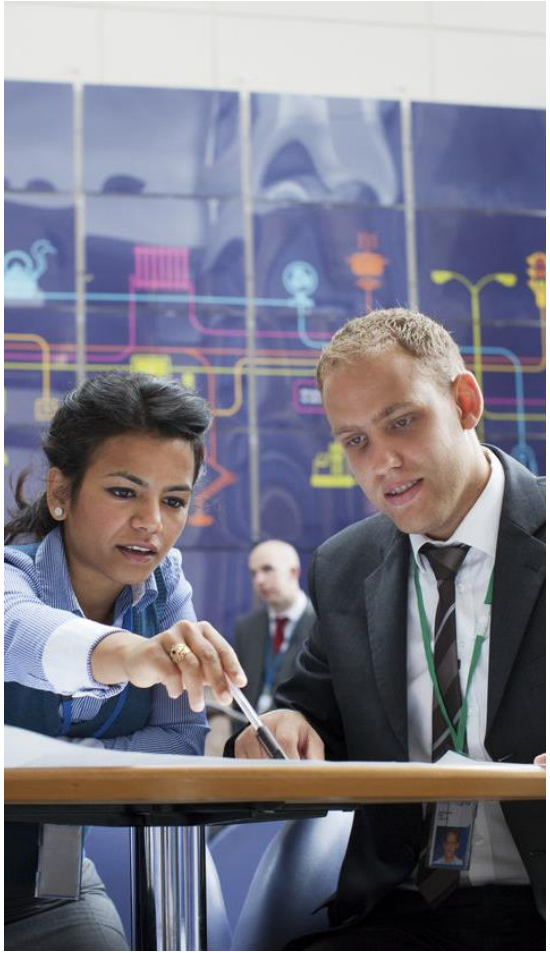
Jon Dutton - Engagement & Publications Manager

Martin Cahill – Senior Operational Liaison Officer

Tom Wilcock - Emergency and Compliance Manager

Ashley Adams – Code Change Lead

Matt Newman – Code Change Lead



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	Online	Clermont & Online	Clermont & Online	x
20/01	24/02	31/03		19/05	30/06			15/09	20/10	24/11	

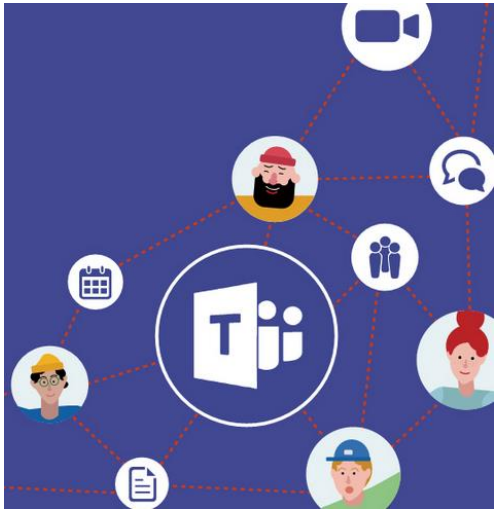
Registration is open for the November 2022 event at:
https://www.eventbrite.co.uk/e/gas-operational-forum-november-tickets-444668103267

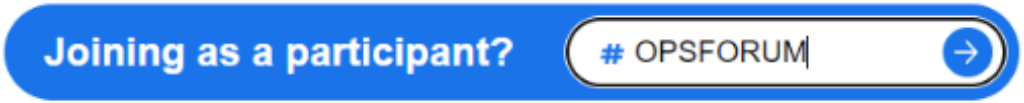
The Clermont Hotel
Charing Cross
London
WC2N 5HX

Housekeeping for Forum

For Microsoft Teams participants;

- Attendees will be automatically muted on dial-in and cameras will be unavailable.
- You can ask questions via Slido (#OPSFORUM)
- We have included some time to answer questions following the presentations



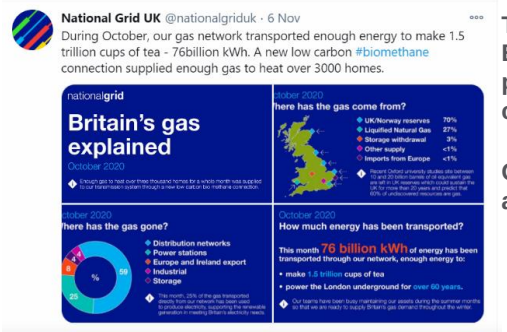


Key resources available to you

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

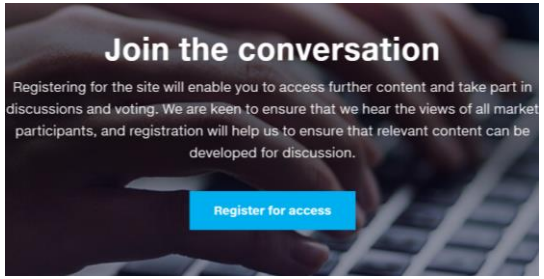
Gas Distribution List

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



The monthly Gas Explained information is published on the data community website

Or follow our personal accounts on LinkedIn



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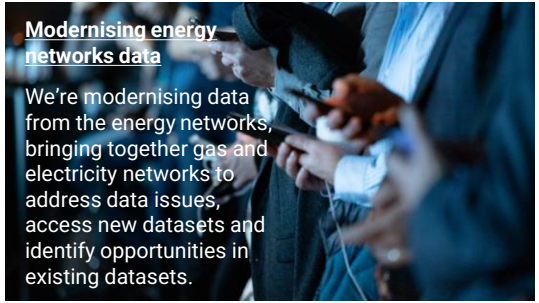
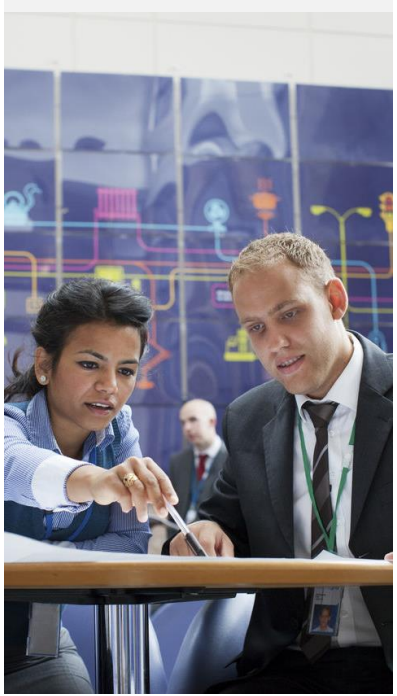
Maintenance Planning
https://www.nationalgrid.com/uk/gas-transmission/data-and-operations/maintenance



Energy Data Request Tool:
Microsoft Forms Link

How to contact us



Operational Liaison Team

Rachel Hinsley: Rachel.Hinsley1@nationalgrid.com

Mathew Currell: Mathew.Currell@nationalgrid.com

Operational Liaison Email:
Box.OperationalLiaison@nationalgrid.com

For updates and interaction with National Grid Gas please visit;
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Agenda for Today

01	Welcome and Introduction	10:02
02	Winter Outlook	10:10
03	Operational Overview	10:30
04	Emergency Exercise	10:40
05	Gas Quality Data	11:00
06	Demand Side Response Follow Up	11:15
07	Margins Notice Follow up	11:25
08	Commercial Tools Refresher	11:35
09	Updates	11:50

Please ask any questions using Slido: #OPSFORUM

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

System Operations Leadership Team

Ian Radley
System Operations Director

Bridget Hartley
Head of Operational Delivery

Steven Fisher
Head of Commercial & Incentives

Paul Sullivan
Head of System Capability & Risk

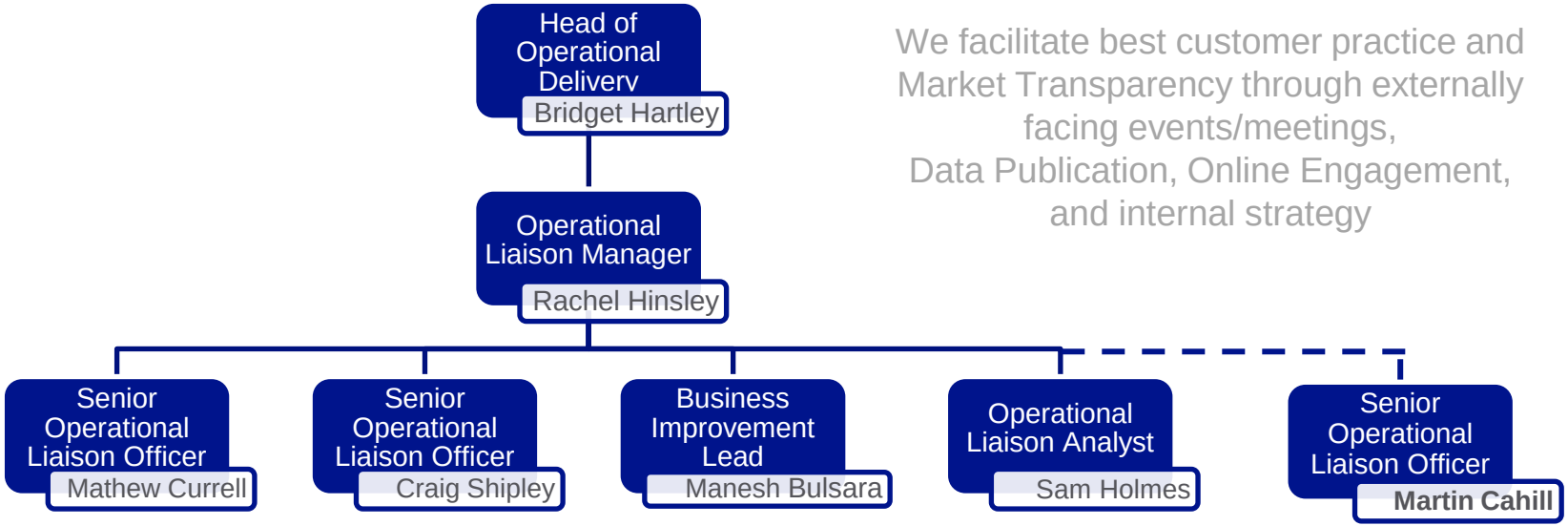
Craig James
Head of National Control

Chris Logue
Head of Markets

Glenn Bryn-Jacobsen
Head of Winter Preparedness

Short term role until Spring 2023, preparing for winter, Security of Supply etc.

Operational Liaison Team



We facilitate best customer practice and Market Transparency through externally facing events/meetings, Data Publication, Online Engagement, and internal strategy

Secondment into the Markets team commencing 1st November 2022

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Winter Outlook

Jon Dutton
Engagement & Publications Manager

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Agenda

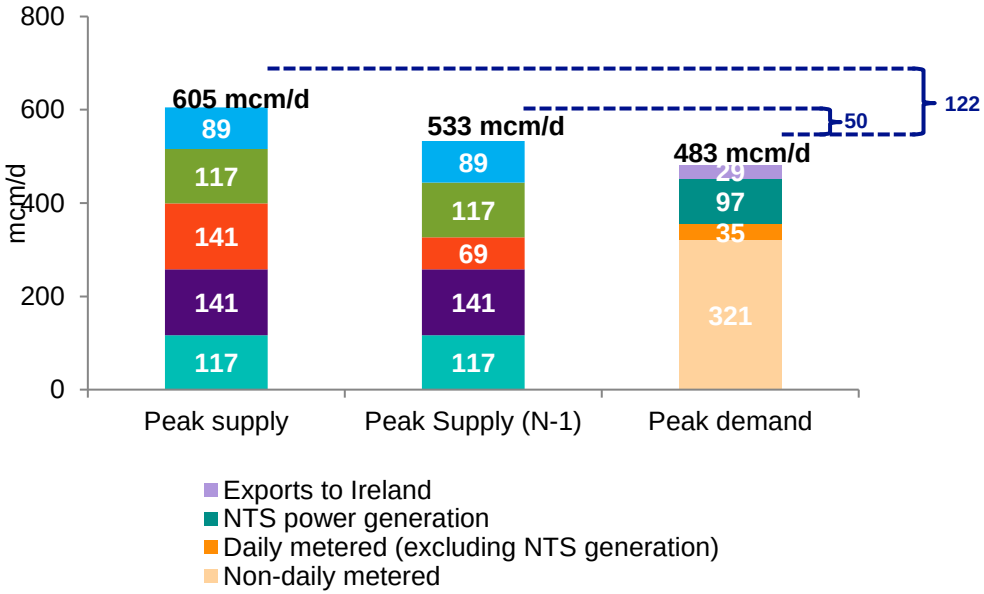
01	Key messages
02	Supply Margins
03	Supply & demand scenarios
04	Summary

Key messages

Infrastructure	• GB gas infrastructure has sufficient capability to meet peak (1 in 20) demand, with a positive supply margin under both intact and N-1 network conditions
Markets	• GB is dependent on various sources of imported gas throughout winter to meet demand, the actual mix of supplies on any given day will be determined by the market • Potential shortfall in gas supplies within continental Europe could impact the ability for GB to attract imports, should they be required • A positive market price differential to both global and European markets will be needed for GB to attract sufficient LNG and imports from continental Europe, when required • We anticipate LNG to act as the primary source of supply flexibility this winter, supplementing UKCS and Norwegian supplies, with imports from continental Europe only occurring during periods of elevated demand • We anticipate the continuing high wholesale gas prices to result in a reduction to both domestic and industrial demand • We anticipate elevated gas demand for power generation in GB in response to low imports / higher exports of electricity to Europe • We anticipate continuing gas exports to Europe at times where there is a supply surplus in GB • We expect GB storage to provide flexibility to the market by responding to imbalances between supply and demand, when required
Tools	• We have the necessary physical, commercial and market based tools to manage a supply and demand imbalance, including those related to a Gas Supply Emergency, should it be necessary

Gas supply margin (Peak Day)

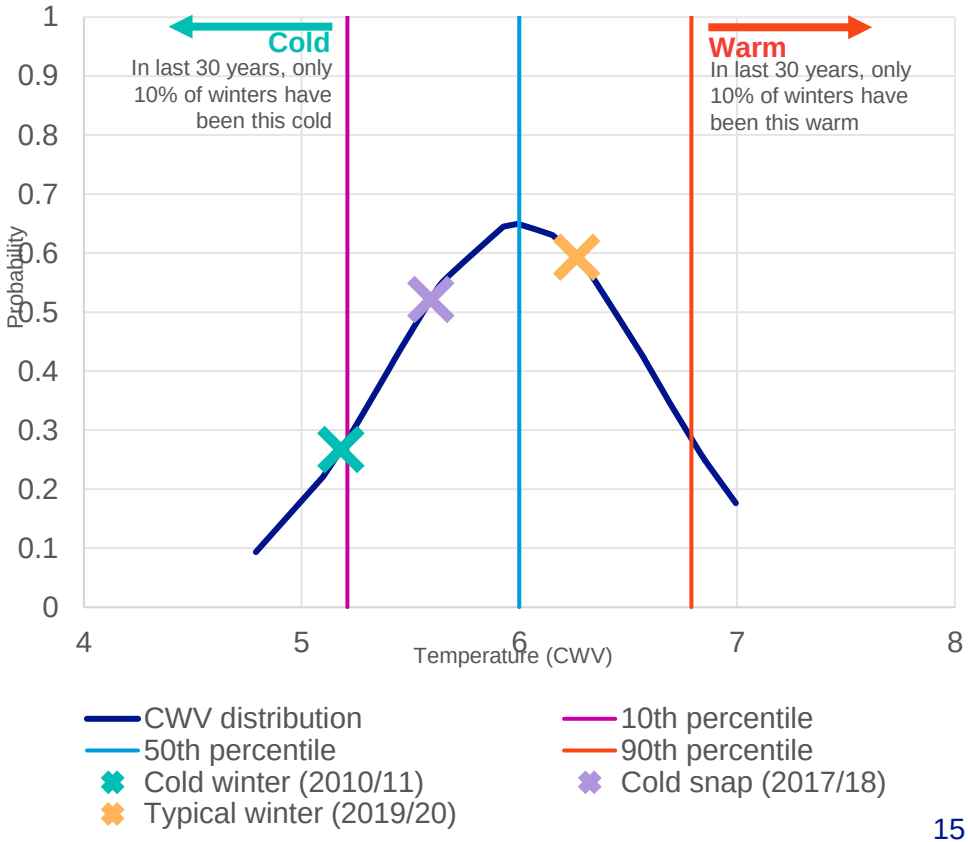
- 1-in-20 peak day supply (605 mcm/d) is comparable to last winter
- Peak day demand has decreased from 505 to 483 mcm/d.
- The peak 1 in 20 supply margin is 122 mcm/d
- We retain a positive supply margin (50 mcm/d) under N-1 conditions.



Our demand scenarios

Scenario	Rationale
Scenario 1: typical winter (2019/20)	Representative of the daily demand we would experience in a typical winter.
Scenario 2: cold winter (2010/11)	Representative of a cold winter, including the highest-ever daily gas demand level and sustained high demands throughout the majority of the winter.
Scenario 3: cold snap (2017/18)	Representative of demand levels during an extreme cold snap, this period contains the 'Beast from the East' which resulted in some of the highest daily demand levels seen in the last five years.

The normal distribution of temperature (expressed as **CWV**) in the UK from 1992 to 2022.



Our scenario assumptions:

Increased gas for power

- We have applied an increase for power generation demand assuming no electricity interconnector imports are available and therefore electricity demand for gas is higher.

Reduction to the level of Non-Daily Metered and Daily Metered demand

- To reflect the impact of the increased price of gas this winter, we have applied a reduction to the level of NDM and DM demand.

Exports to continental Europe during Oct and Nov

- In line with prevailing forward price differentials, we have assumed exports to continental Europe in October and November.

Continental Europe imports minimised

- To reflect the geopolitical situation, we have assumed that continental Europe imports are minimised where possible.

In summary, our scenarios seek to achieve a network balance in the following manner:

Supply Surplus

In the event the NTS is over-supplied, gas is presumed to be injected into GB storage and/or gas exports to continental Europe will increase, before LNG supplies are reduced.

Supply Deficit

In the event the NTS is under-supplied, it is presumed there will be an increase in storage withdrawal and LNG deliveries, whilst reducing any continental Europe exports, prior to requiring continental Europe imports and maximising storage withdrawal.

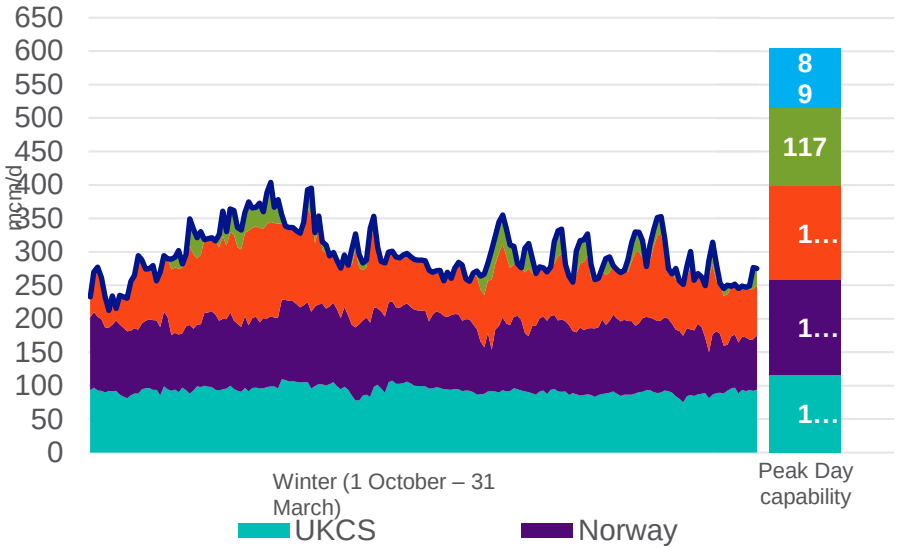
Scenario 1: typical winter (based on 2019/20):

In this scenario we have applied the following assumptions:

- LNG acts as the primary balancer to meet demand
- UKCS and NCS supplies as per recent Winters

Key Observations:

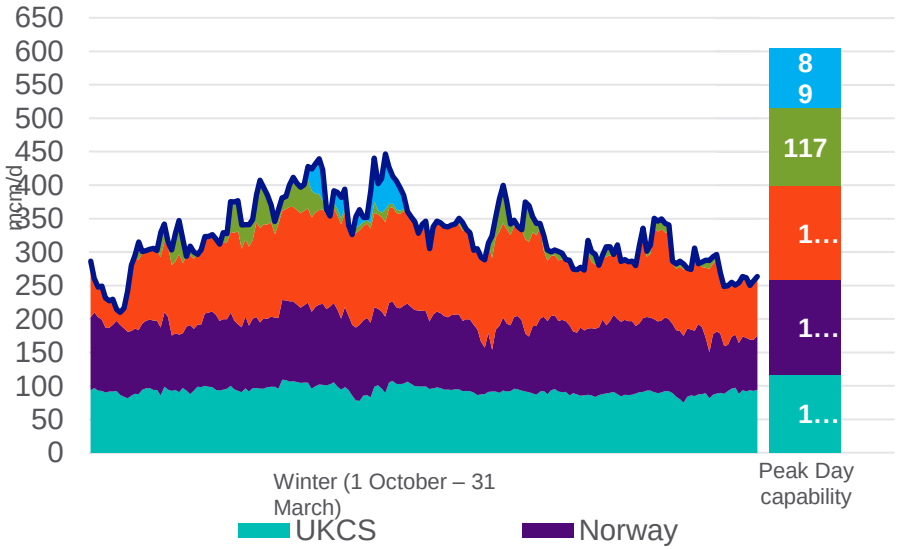
- European imports are not required in this typical winter scenario if sufficient alternate flexible supplies come to GB.
- The volume of LNG required to balance the scenario could be reduced by higher supplies from UKCS or Norway, or by lower levels of exports earlier in the winter.
- GB storage is utilised throughout the winter to meet higher demands. Periods of lower demand provide the opportunity for GB storage to refill.



Scenario 2: cold winter (based on 2010/11)

In this scenario we have applied the following assumptions:

- LNG and GB storage supplies are maximised to meet demand.
- Continental European imports are utilised when both LNG & Storage are at maximum capability
- UKCS and NCS supplies as per recent Winters



Key Observations:

- This scenario illustrates that in a very high demand winter, imports from continental Europe may be required to achieve a supply-demand balance
- The volume of European imports shown could be reduced by higher supplies from UKCS or Norway, or by lower levels of exports earlier in the winter.
- GB storage is utilised throughout the winter to meet higher demands. Periods of low demand provide the opportunity for storage to refill.

In summary

- GB Gas Infrastructure has sufficient capability to meet peak demand, with a positive supply margin under both intact and N-1 network conditions
- We have presented three balanced scenarios which look to illustrate the extent to which GB security is dependent on flexible sources of imported gas supplies, prioritising LNG, to illustrate any resultant dependency on EU imports:

In a typical winter	▪ Imports from continental Europe may not be required in a typical winter if sufficient LNG is attracted to GB in-line with levels seen in previous winters. ▪ GB may also be able to export energy to Europe.
In a cold winter	▪ LNG reaches maximum capability on a number of days, meaning other flexible supplies such as imports from Europe may be required. ▪ More supplies from UKCS and Norway, or exporting less to Europe during the early part of winter, may reduce the need for imports from Europe.
In a short duration cold snap	▪ GB storage supplies may act to balance the system during short-term periods of high demand. ▪ If GB storage supplies are low going into a cold snap, LNG supplies could reach maximum capability, meaning imports from Europe may be required to meet the shortfall.


Homes could face three-hour power cuts this winter
Nightmarish chaos of blackouts
Energy rationing is a real threat
Britons turn to electric blankets and candles as winter looms
UK households urged to reduce energy use

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Operational Overview

Martin Cahill
Senior Operational Liaison Officer

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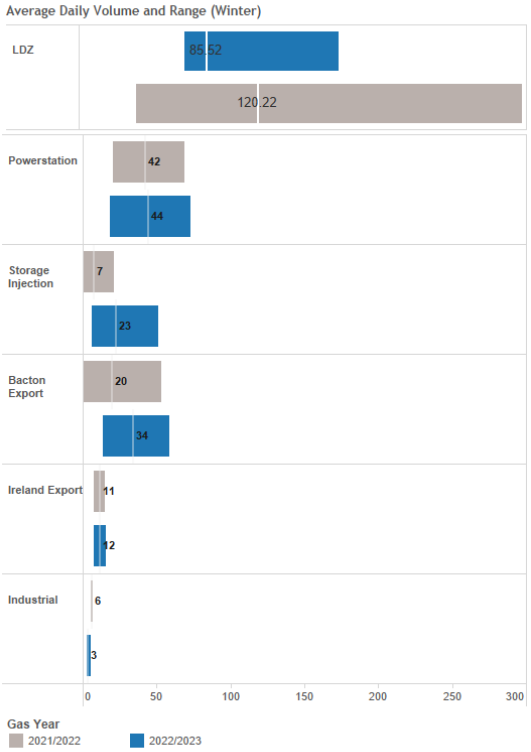
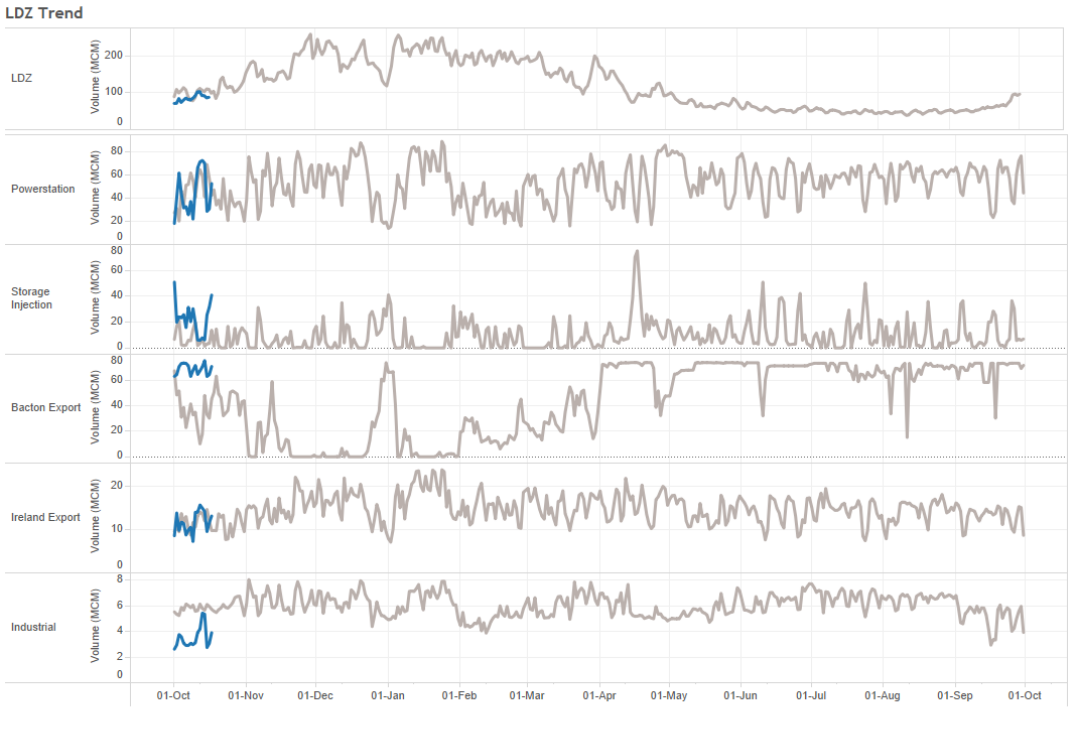
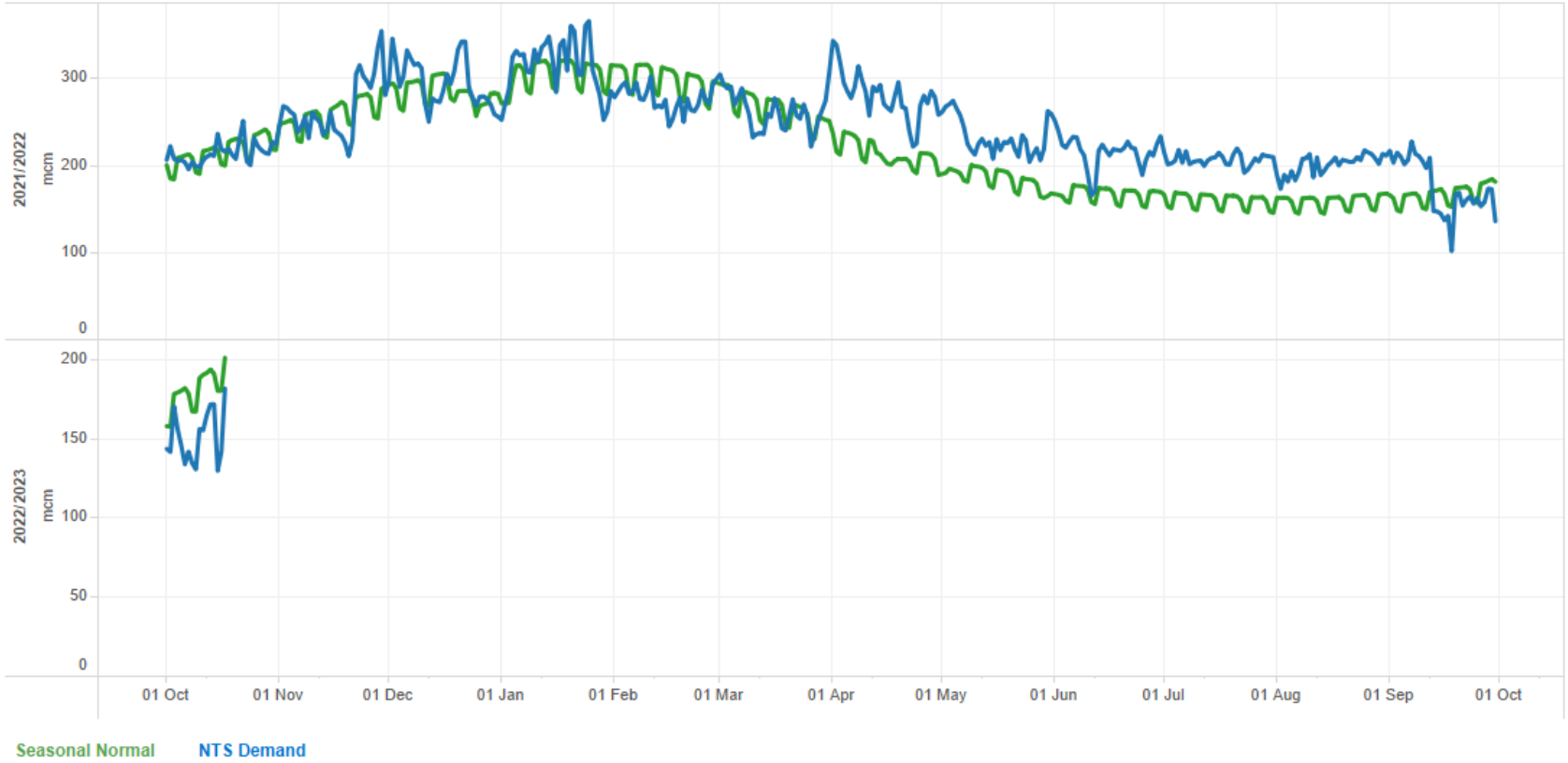
Components of NTS Demand

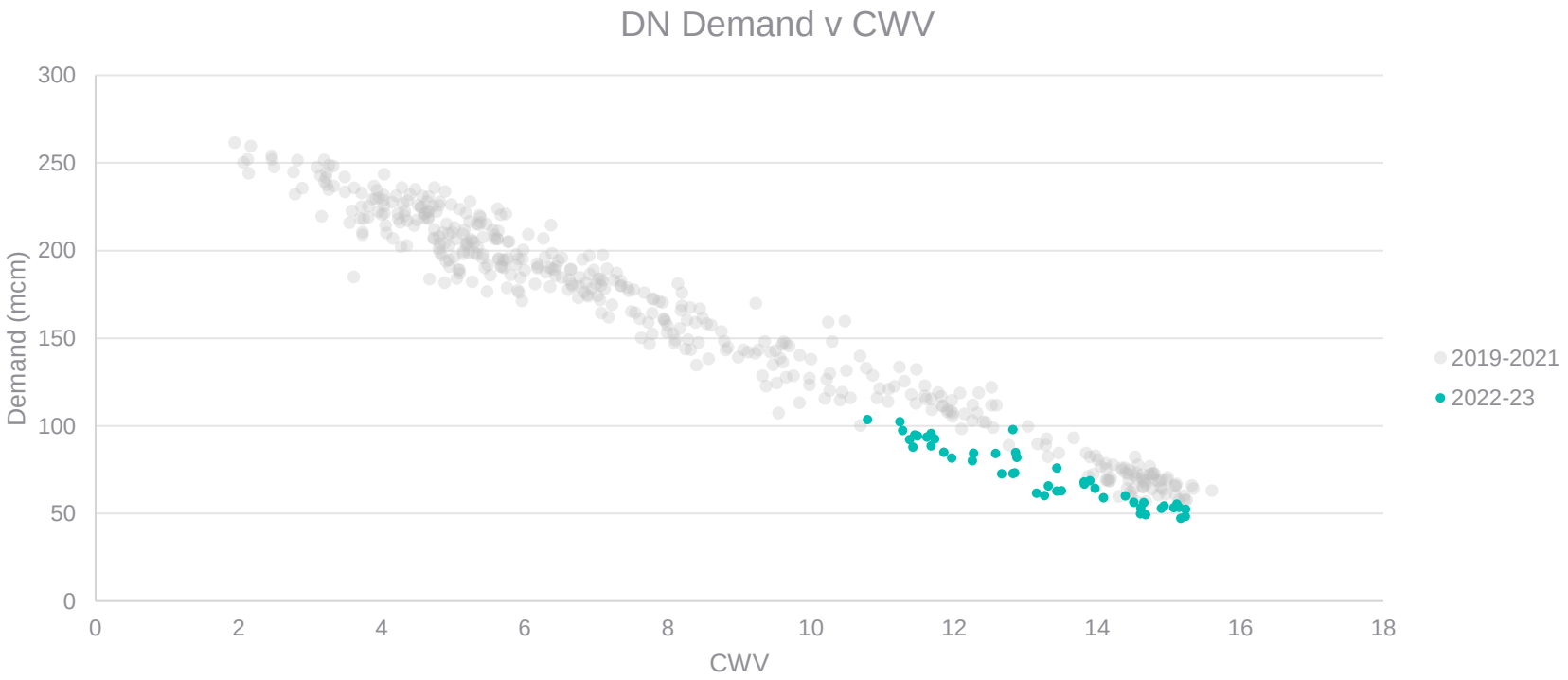




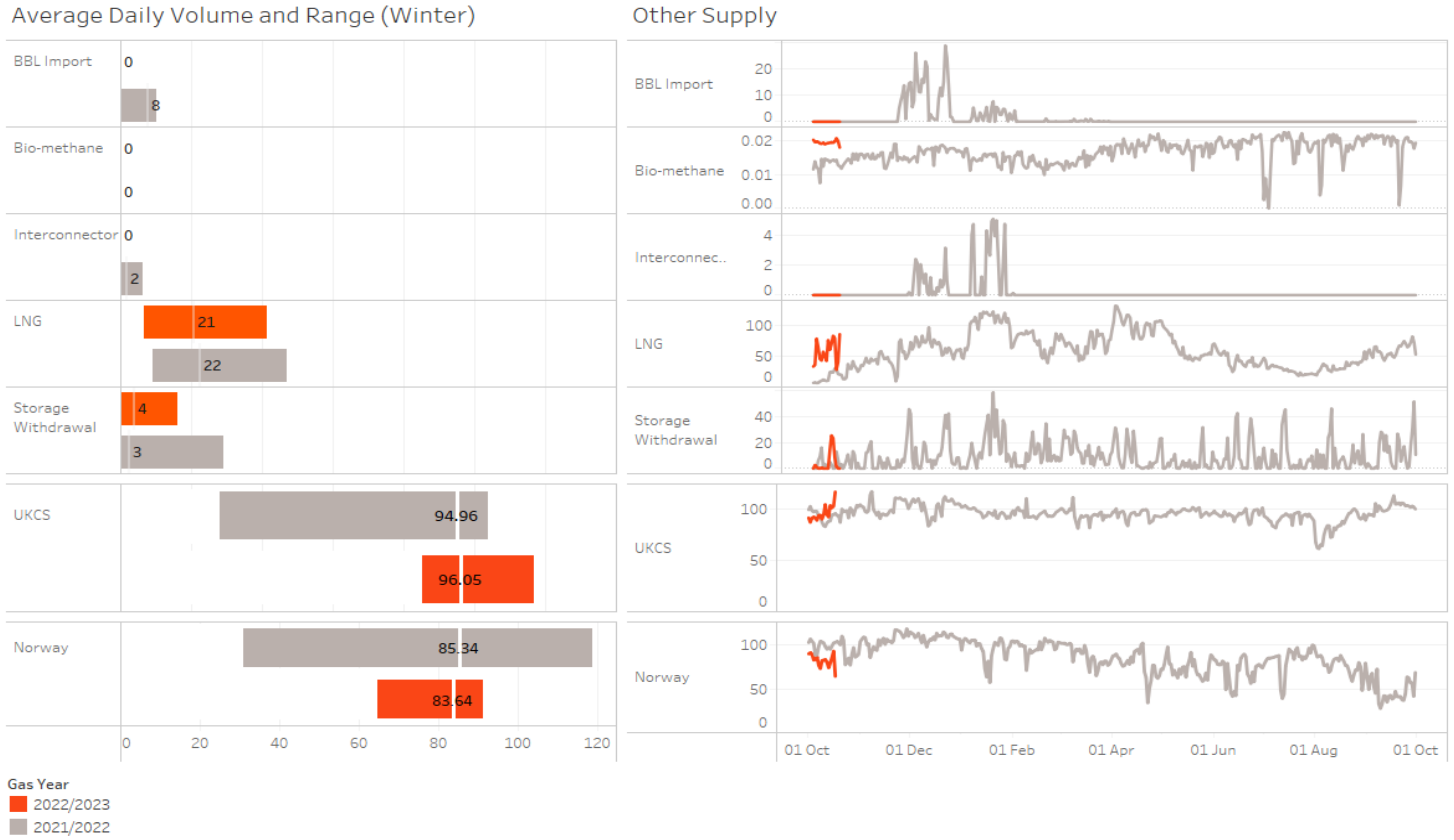
Demand – Comparison to seasonal norm



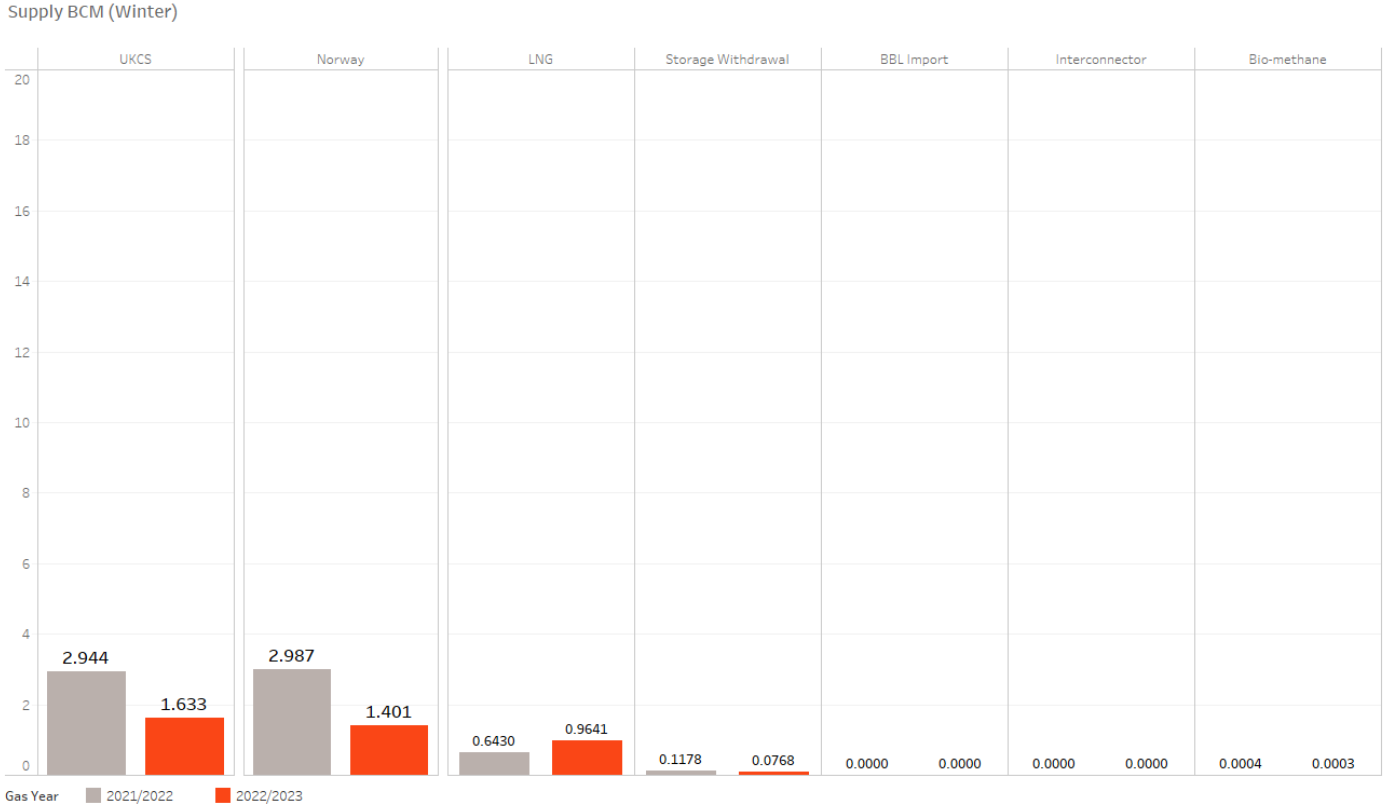
Demand Suppression



Components of NTS Supply



Supply - Components

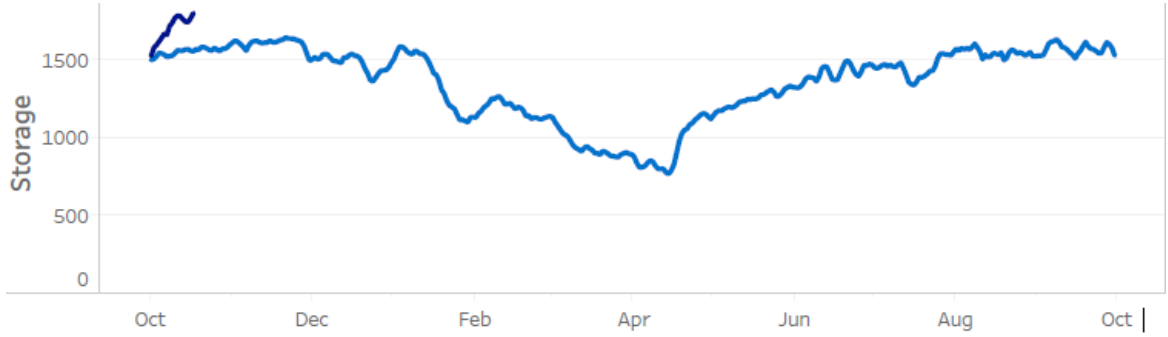


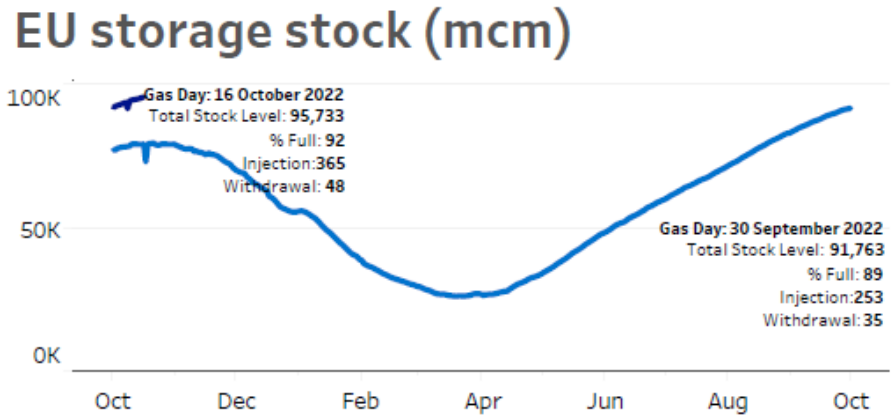
UK Storage Stock Position

Total GB Storage Stock and Percent Full

1,826 mcm

73% full

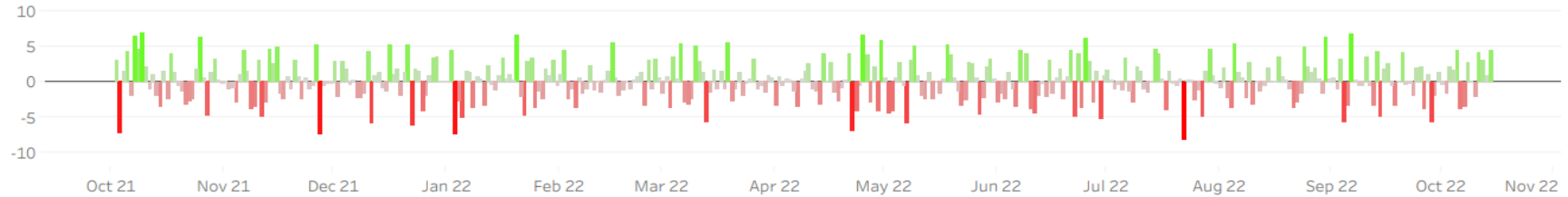




Opening Linepack (mcm)

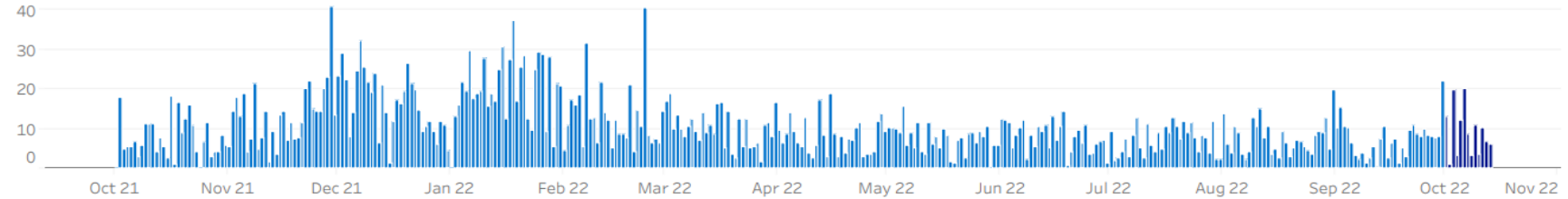
Linepack Gain/Loss (mcm)

The difference between the opening and closing linepack



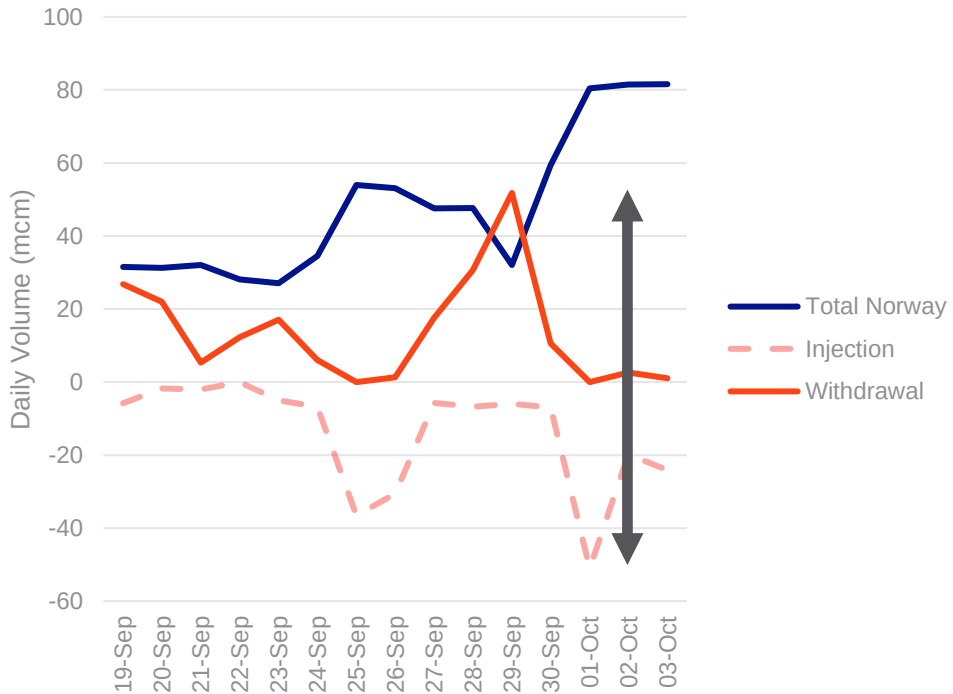
Linepack Swing (mcm)

Linepack swing is calculated as the difference between the maximum the minimum linepack recorded for each gas day.



Norway outages and Storage Switch

- **Large swing in storage from withdrawal to Injection from 29th September to 1st October**
- **Behaviour influenced by Norwegian supply – supply loss on 29th Sep saw withdrawal increase**
- **Have seen a mix of injection and withdrawal on the same day at times**



Gas Transmission

Emergency Exercise

Tom Wilcock
Emergency and Compliance Manager

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NEC Exercise Degree

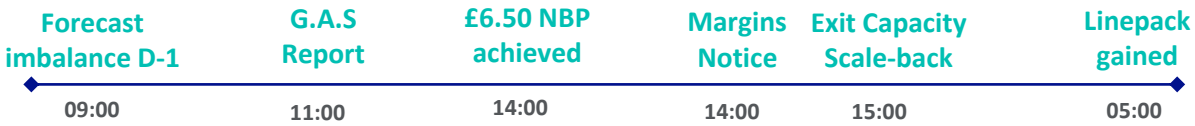
Wednesday 28th September
Emerging issues

Tuesday 4th October	Wednesday 5th October
Pre-emergency	Emergency

Tuesday 11th October
Restoration

Day 1 – Emerging Issues

- Clear direction for GSO & ESO to share information openly was quickly obtained from BEIS
- There is an opportunity to optimise tripartite briefings on whole system health (GSO – ESO – BEIS)
- Proactive response discussions are essential, providing a series of opportunities to mitigate system stress and buying time ahead of a fast-moving situation



Wednesday 28th September
Emerging issues
• Gas Transporter collaboration • Gas Availability Status (GAS) report (live exercise activation) • Strategy for restricting release of further NTS capacity • Simulated communications issues • Margins Notice (live exercise activation)
09:00 – c.16:00

Day 2 – Pre-Emergency

- The failure to achieve a competitive price against the European differential was heavily scripted to assure a scenario which would trigger an emergency
- The process to determine electricity system impact, arising from the Gas Network's pre-emergency strategy, is complex and fast moving, but the responders and tools deployed to conduct this have matured significantly
- A whole system route was achieved without moving to load shedding of native demand

Tuesday 4th October
Pre-emergency
• Gas Balancing Notification (live exercise activation) • OCM balancing trades (notional) • Scaleback off-peak exit capacity (notional) • Operating Margins (live exercise activation) • Electricity System Interactions • **Stage 1**: 'Emergency Specification Gas' (live exercise activation)
09:00 – c.16:00

Day 3 – Emergency

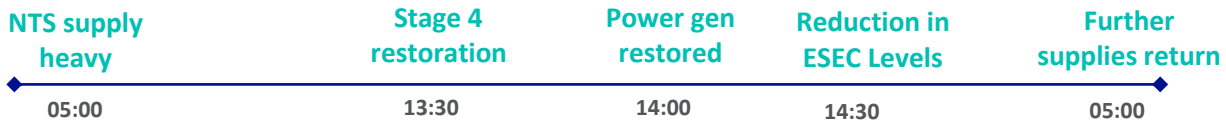
- Further collaboration between the NEC and BEIS would support determining the least impactful route through load shedding
- Pre-determined assessment of load shedding returns in the Local Distribution Zones is vital to GSO's ability to swiftly deploy the strategy
- The ability of the System Operators to determine electricity system baseload provided by NTS connected generators is now mature, with several layers of additional detail achieved in the exercise

Wednesday 5th October
Emergency
• **Stage 2**: Flow Direction & Load Shedding (live exercise activation) • Electricity System Impact • **Stage 3**: Public Appeal and Allocation & Isolation (live exercise activation)
09:00 – c.16:00

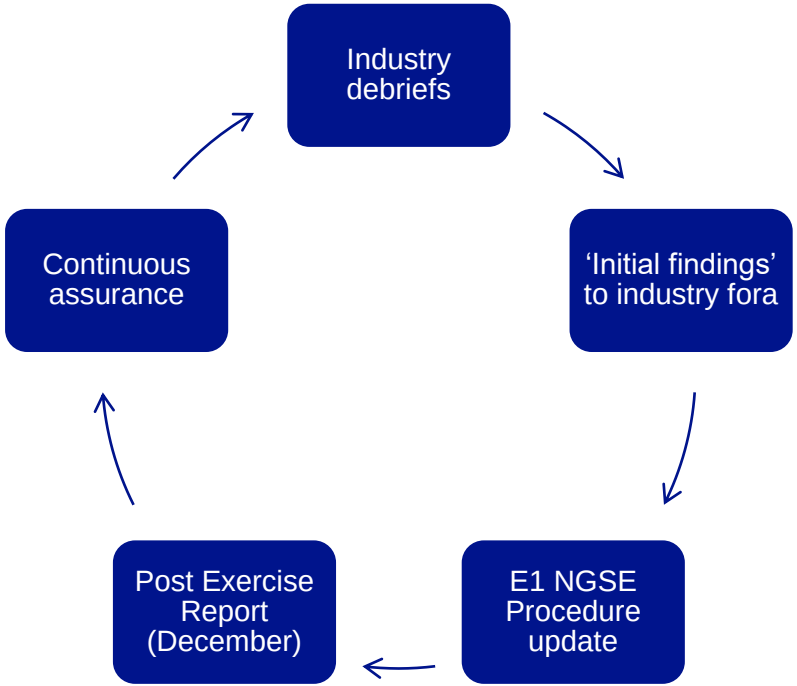
Day 4 – Restoration

- BEIS takes an active role in determining the priority for restoration during a Stage 4 Network Gas Supply Emergency
- 2022 has already seen a series of workshops and desktop exercises on the restoration process (Ex ‘Disrupt’)
- As expected, priority for restoration fell to power generation and Category C industrial customer’. The duration for restoration of gas consumers is days/weeks
- Ending an NGSE requires all revocation notices to be delivered and 19hours notice given to the ‘market’

Tuesday 11th October
Restoration
• **Stage 4**: Restoration (live exercise activation) • Issue of Revocation Notices (live exercise activation) • Declaration of the end of an NGSE (live exercise activation)
09:00 – c.16:00



Lessons learnt and reporting



Priority Sites for Emergency

BEIS have recently undertaken a review on the criteria used to add sites to the priority list for an emergency, following a recommendation from the Review of the Impact of a Gas Supply Shortage on Electricity project in 2021

The review concluded that the fixed financial threshold of £50million of damage should be replaced by damage costs calculated as a percentage of site value, and that the obsolete Category B should be replaced by a new category permitting the protection of sites of significance to national security or whose loss would pose a significant threat to welfare.

The BEIS Secretary of State has issued a letter of direction to the gas transporters to base their priority lists on the following classes of relevant customers:

- **Category A: Relevant customers where a failure in the supply to their premises could put lives at risk.**
- **Category B: Relevant customers for which the sudden loss of gas causes or threatens to cause serious damage, for an unacceptably prolonged period, to human welfare, the environment or the security of the United Kingdom that cannot be reasonably mitigated.**
- **Category C: Relevant customers taking over 2 million therms per annum for which the sudden loss of gas would result in repair or replacement costs amounting to 10% or more of the Site Fixed Tangible Asset Value.**

Priority Sites for Emergency

In accordance with the licence conditions, the creation and maintenance of their priority lists remains the responsibility of the gas transporters. The assessment of whether a site satisfies the criteria rests with the relevant gas transporter, although they may apply to BEIS for advice on those sites that might meet the criteria for the new Category B given the sensitivities involved in such an assessment, and BEIS is developing a process across government to support identifying relevant sites.

Sites on the current Priority List that fall outside of the proposed new criteria for Category C will remain on the list until at least the end of March 2023 but will be informed following implementation of the new criteria that they may no longer qualify after that date.

National Grid Gas and the GDNs are discussing the implementation of these changes and in particular the application process, following which further communications will follow at the earliest opportunity.

Gas Transmission

Gas Quality Data

Ashley Adams
Code Change Lead

nationalgrid

Context

Revision of the Gas Safety (Management) Regulations 1996

Proposals:

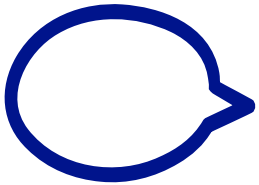
Reduce the lower Wobbe number (WN) limit from 47.2MJ/m^3 to 46.5MJ/m^3

Replace Incomplete Combustion Factor (ICF) and the Soot Index (SI) with relative density limit of ≤0.700

Increase oxygen limit from 0.2mol% to 1.0mol% in gases conveyed at pressures up to 38 barg

The provision of gas quality data has not kept pace with the transparency of other data items within the regime.

We're interested in enhanced gas quality data provision because of the effects it can have upon entry customers within our networks.



Enhanced provision of Gas Quality data may act as an enabler for hydrogen blending into the NTS.

Potential Benefits of Enhanced Gas Quality Data Provision

- More efficient and timely adaptation of gas-fired generation assets to maintain electricity security of supply.
- Bring new services to market that aid NTS customers and their operations.
- Articulate high-level costs associated with any enhanced data offering.
- Enable GDNs to better manage the impact of CV variations on their networks.
- Potential enabler for the blending of hydrogen into the NTS.
- Reduce concerns with proposed gas quality changes that are sensitive to Gas Quality variation.

Challenges

Commercial sensitivity of site processes to changes in gas quality

Provisions for data errors and mis-measurements

Publication of data from entry points would not be a true reflection of gas quality delivered to customers

Confidential nature of gas quality data at NTS entry points

Some benefits may be limited to a specific sections of industry– who pays?

Project Activities

Working Group Meetings	Analysis of current market arrangements	GS(M)R Review network penetration	NTS Exit Customer Survey

Parameters of most interest: CV, Wobbe Index and rate of change.

Adaption of equipment may take years and incur substantial cost.

Wide range in desired frequency of measurement publication.

Additional Gas Quality data may:

- Allow operational changes as required
- Reduce the risk of equipment trips,
- Help in understanding of the effect of varying gas quality on equipment
- Facilitate solutions for customers downstream of the NTS.

Next Steps

- Next Working Group meeting planned for November
- Analysis of other gas markets ongoing
- Option development
- High level costings

To find out more about the project or to get involved please contact:
Ashley.Adams@nationalgrid.com

Gas
Transmission

Demand Side Response

Matt Newman
Code Change Lead

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DSR Overview Prior to Mod 0822

- Gas DSR enables consumers to offer to reduce their demand via their shipper/supplier during the build up to a gas emergency, in return for a payment which they define
- During times of insufficient gas supply, the use of gas DSR **could reduce the likelihood, severity and duration of a gas deficit emergency**
- Intended to provide a ‘route to market’ for large consumers to receive **greater financial compensation by voluntarily curtailing demand ahead of an emergency** than if they were involuntarily curtailed in an emergency.
- Shippers may place offers to sell quantities of gas on the OCM DSR locational market which NGG may accept after a Gas Balancing Notification (GBN) has been issued prior to declaration of a Stage 2 emergency
- ‘Exercise’ payments are the only form of payment

Key Principles Prior to Mod 0822

- Allows consumers to define their VoLL (Value of Lost Load)
- Presents a commercial opportunity to voluntarily curtail flow prior to entering a Stage 2 Emergency where Firm Load Shedding could take place
- DSR Market hosted on OCM with a minimum offer quantity of 4,000 Therms/d
- Tranches of load can be offered
- Market available to parties defined as “DMC” in UNC eg sites with consumption of >2m therms pa
- DSR market opens following the issue of a Gas Balancing Notification (GBN)
- Requires a within-day reduction

Why Was Reform Needed?

- **Zero Bids were placed when the DSR Market opened in 2018**

- **DSR reviewed as part of Winter Preparedness activities**

- **Engagement with Customers and Stakeholders has confirmed:**

- Scheme does not compensate parties enough for them to participate
- Within-day response is not possible for most sites
- Backup fuels are no longer in place for most sites

Overview of DSR Reforms in Mod 0822

Invitation to Offer

Hold an Invitation to Offer inviting shippers to commit to place offers for within day or day ahead demand reduction for the coming Winter (1 Nov to 30 Apr) and next two Winters

Shippers whose offers are accepted will receive monthly option payments (designed to be passed onto the relevant consumer)

Designed to encourage participation and ensure a guaranteed level of response in the event of the DSR Market opening

Option Payment

National Grid may accept option offers from all shippers up to an aggregate cost of £5m. If National Grid wishes to accept offers above £5m, referral to Ofgem would be required

Funded by Energy Balancing Neutrality and paid monthly during the Winter months

Each accepted option creates an obligation on the shipper to place an equivalent DSR market offer onto the OCM DSR Market within 1 hour of it opening. Charges apply for failure to comply.

Extend DSR Window

Extend the trigger for the DSR Market opening to include a Margins Notice at D-1 as well as a Gas Balancing Notification

Enables DSR Market offers to be posted by Shippers at D-1 as well as within day

Joint Webinar with ICE Endex

- Joint webinar with ICE Endex on 23/11/22 at 14:00 UK time
- Overview of Modification 0822 & drivers for change
- Overview for Shippers on how to place DSR Market bids on the OCM
- Invites will be circulated via the Joint Office / ENA

For additional information please contact me on
matthew.newman2@nationalgrid.com

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Margins Notice Follow Up

Martin Cahill
Senior Operational Liaison Officer

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Existing 5 Day View Methodology

Non Storage/LNG Supplies (NSS)

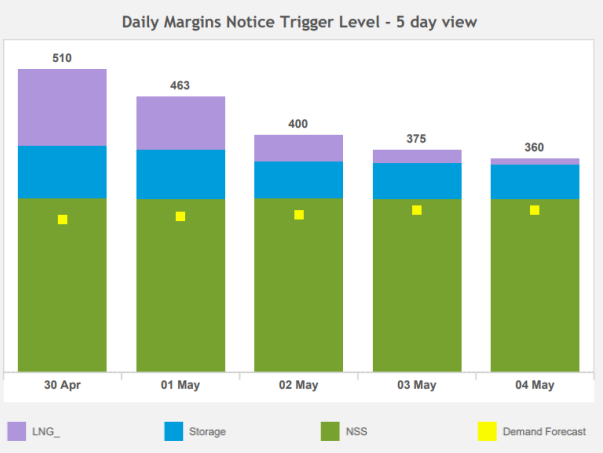
- Determined by National Grid based on best available information of maximum upstream asset capability for terminals and interconnectors.
- Reviewed regularly throughout the winter.

Storage

- Uses the relationship between stock level and deliverability (decay) curve provided by the site operators.
- Assumes max deliverability for each site based on its deliverability curve and reduces the stock value by this amount for the following days calculation (up to D-5).

LNG

- Assumes LNG will deliver at 95th percentile of their flows over the last 3 winters (cold weather capability).
- Min tank level is determined by lowest stock we've seen plus 18 days worth of boil off flow (assumed typical boat transit time).
- Applies cold weather capability everyday unless stock level drops below min tank level in which case limited to available volume and then just boil off for subsequent days (up to D-5).



5 Day View Limitations & New Margins Notice Forecast

Existing 5 day view

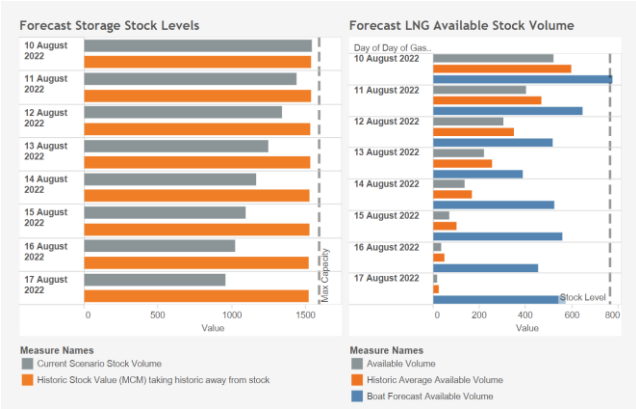
- The 5 day view often shows a significant reduction in supply availability because it assumes storage facilities withdraw gas at their maximum rates based on prevailing stock level
- This is often not reflective of actual storage behaviour unless it coincides with a period of high demand
- Actual Margins Notice trigger levels therefore tend to remain more constant than the 5 day view suggests

Margins Notice Forecast

- Intended to provide a more realistic view of what the trigger level might be on any day out to D-7
- Based on week ahead demand forecast and different storage and LNG assumptions
- Our intention is to publish it every day on National Grid Prevailing View between 1 October and 30 March

New Margins Notice Forecast Methodology

Changes in **RED** from D-5 methodology



Non Storage/LNG Supplies (NSS)

- As per existing methodology, determined by National Grid and reviewed through winter.

Storage

- Uses the relationship between stock level and deliverability (decay) curve provided by the site operators.
- Assumes max deliverability for each site based on its deliverability curve but reduces the stock value by **the 7 day historical average withdrawal** for the following day's calculation (up to **D-7**).

LNG

- Assumes LNG will deliver at **average of last 7 days actual flow.**
- Minimum tank level is determined by lowest historical stock observed at each terminal plus **X** days worth of boil off flow (**X based on number of days until next cargo through National Grid LNG cargo monitoring**).
- Applies **average of last 7 days actual flow into the NTS** every day unless stock level drops below min tank level in which case limited to available volume and then boil off for subsequent days (**up to D-7**).

Margins Forecast Report

Demand Forecast

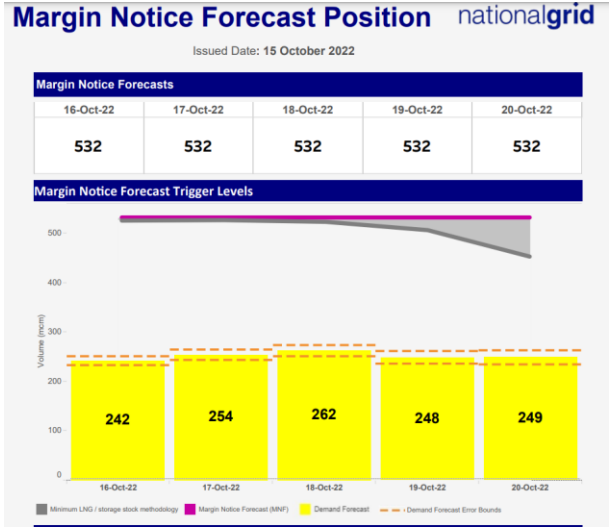
- Confidence bands will be placed around demand forecasts based on the historic average error (in mcm) for each forecast day (D-1 to D-7)

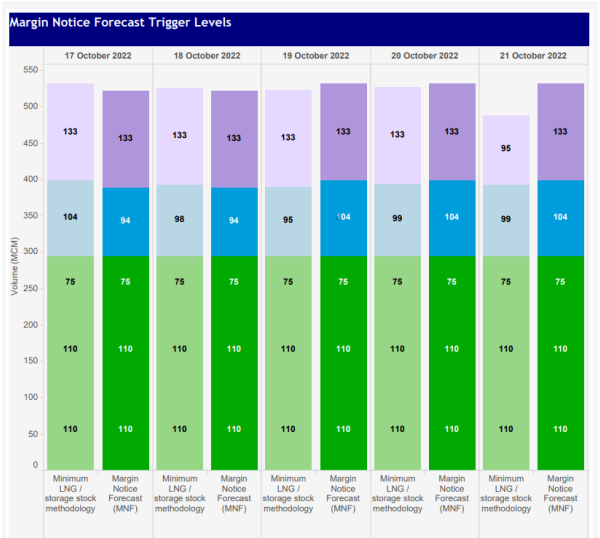
Minimum LNG/Storage Stock Methodology

- This is the same as the UNC methodology and is shown alongside the new methodology for comparison

Breakdown

- 2nd page shows a breakdown of figures by each supply type – LNG, Storage, Interconnector, UKCS, Norway





Prevailing View

Forecast Margins Notice and Demand D-2 to D-7

Date	14/10	15/10	16/10	17/10	18/10	19/10
Margins Notice	532	532	532	532		
Demand Forecast	243	227	233	250		

To view the Daily Margins Notice Report please visit the Margins Notice page on our website

Forecasted End of Day Position

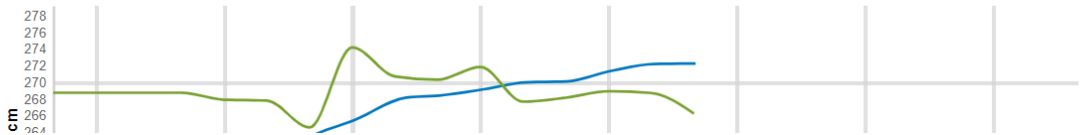
Forecast: Short

-5.9mcm

Opening Linepack:

Within Day Evolution | Latest Forecast

Forecast Supply and Demand



Your Feedback

Do you use our Margins Notice Reports?

Is the data useful to you?

Is there anything else that you would like to see?

Gas
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Commercial Tools

Martin Cahill
Senior Operational Liaison Officer

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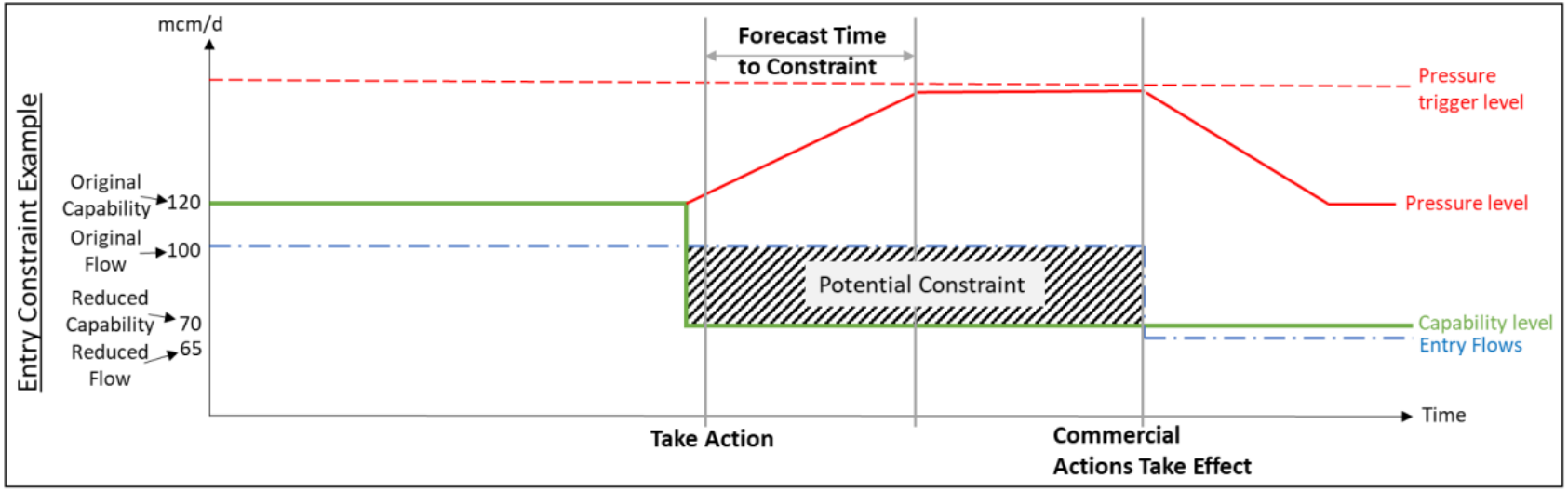
What is a Capacity Constraint?

A restriction affecting part of the system which results in the gas flow being constrained.

Unpredictable constraint = If a key compressor fails, then the gas entering the network cannot be moved away fast enough to allow the supply rate to continue. Thus, an entry point may be constrained.

Predictable constraint = Planned maintenance, we can schedule this and manage the network around the surrounding region to reduce any effects from the reduced capability of the network in the area.



Pressure level reflects the pressure within our NTS pipelines which could go up when the network is experiencing a constraint.

Pressure trigger level = if hit, an alarm is raised which indicates a safety concern where there is a constraint.

Managing the Network

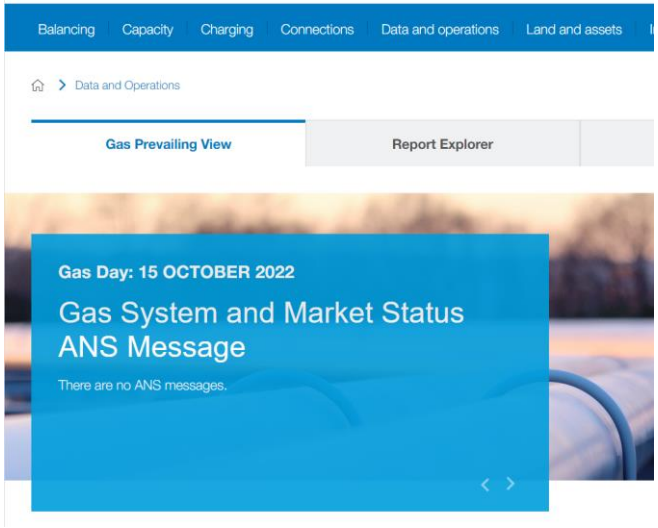
Operational tools (internal)	Operational tools (external)	Commercial tools	Network Integrity
Reconfigure Network Optimise Compressor Fleet Manage Outages	Agree Pressures (Distribution Network Operator (DNO) Only) Flow Swaps (Distribution Network Operator (DNO) Only) Enforce Contractual Offtake Rules	Scale-back Capacity (Entry Interruptible & Exit Off peak) Restrict Daily Capacity Locational Energy Actions Capacity Surrender Offtake Flow Reductions Initiate Constraint Management Agreements	Operating Margins Terminal Flow Advice (TFA) (Entry) Critical Transportation Constraint Gas Balancing Notification
Information Provision (MIPI *(Market Information Provision Initiative)* / Website / Gemini / ANS *(Active Notification System)*)			

Please note that not all tools are applicable in all scenarios.

Communications

All communications in relation to use of commercial tools are issued using our FACT24 Active Notification System (ANS)

- **Email messages are sent from fact@fact24.com. If registered to receive email notifications, please ensure this is in your safe senders list**
- **Relevant Notices are also published via the Prevailing View page on our website**
- **Please contact box.OperationalLiaison@nationalgrid.com if you need to update any details**



Capacity Scaleback and Restoration

When might we use this tool?	**In response to a forecast constraint in part of the network** • Physical Capability at an entry point is less than capacity entitlements held by users • Potential exit constraint forecast
What are the timings?	• Entry – Hour Bar + 60 Mins (e.g. scaleback at 12:30, effective from 14:00) • Exit – HB + 4 hours (e.g. scaleback at 12:30, effective from 17:00) IP timing can vary, restoration is from start of following hour bar
Which products does this apply to?	Daily Interruptible System Entry Capacity (DISEC) or Daily Off-peak NTS Exit Capacity (DONEX) auctions are where Users request interruptible/off-peak capacity rights. This is booked at the day-ahead stage.

Capacity Scaleback and Restoration Communications

National Grid will notify all users that an ICF (Entry Interruptible Curtailment Factor)/ OCF (Exit Offpeak Curtailment Factor) has been applied via ANS, including the value of the ICF/OCF.

The value can be between 0 and 1 where: ICF/OCF = 1 - No scalebacks (i.e. 100% Interruptible/Off-peak capacity available) ICF/OCF = 0 - Total scaleback (i.e. 0% Interruptible/Off-peak capacity available)

National Grid is scaling back Interruptible Entry Capacity/Off-peak Exit Capacity at the following ASEP(s)/NTS Exit

Zone(s) XX for Gas Day DDMMYY, effective time HH:MM with an ICF/OCF of X.

Details of the specific scaleback (e.g. effected locations, start time etc) action can be found in the Gemini or Gemini Exit systems here:
Home - Constraints - Constraint/Restoration History

Users can view their original and net scaled capacity rights in the following screens:
Entry: Gemini – Product – Entitlements Net
Exit: Gemini Exit - Publish - Reports - User Reports - Entitlement Report

Locational Energy Actions for Constraint Management

National Grid may trade gas at specific NTS Entry and Exit locations in the management of NTS constraints

Aim: Increase or reduce actual flow rates without affecting capacity entitlements

Primary and Secondary Locational action cost/revenue is calculated on a daily basis and processed through capacity neutrality based on individual firm entry capacity holdings.

- National Grid requests market participants to post bids to buy or offers to sell gas at specific ASEP(s), or NTS Exit Point(s).
- National Grid accepts bids/offers based on factors including the cost, location and lead-time in line with the System Management Principles Statement (SMPS).
- In the event that taking Locational trade(s) affects the national imbalance, we may have to take a secondary action elsewhere and in the opposite direction of the primary one. Any secondary action would be for a volume equal to or less than the primary trade.
- A Contract Renomination is required following acceptance of a Locational bid/offer, by the later of D-1 19:00 or 60m after the trade has been notified, and no later than 03:00 D. *UNC TPD Section D, 2.2.1 (h)*
- If a Contract Renomination is not submitted, or non-compliant, a Physical Renomination Incentive (PRI) Charge is applicable. This is calculated as the greater of the Trade Nomination Qty x 0.005p/kWh, or £200. *UNC TPD Section D, 2.3.7-8*

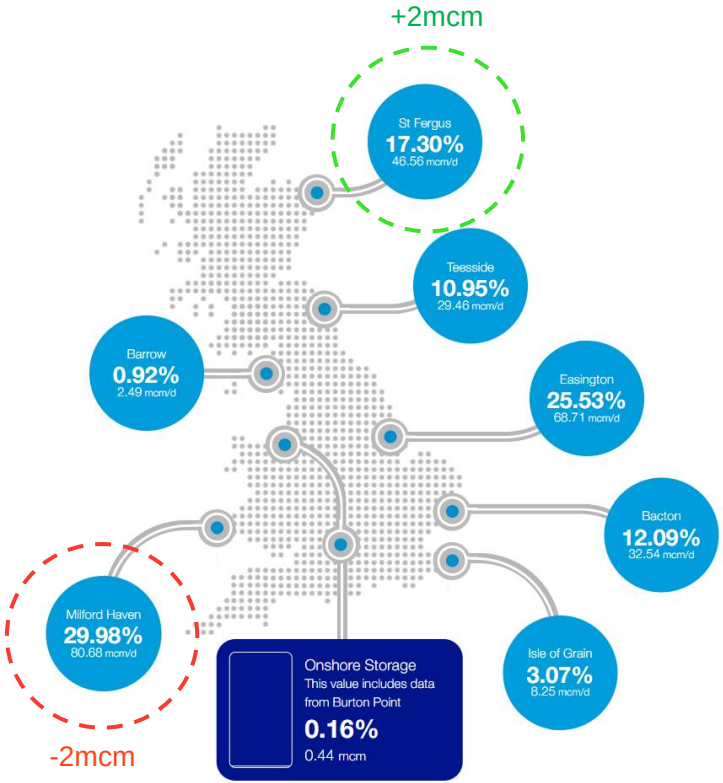
In line with Constraint Mgt incentive principals, bids/offers for Locational Actions, or Buy Back offers are only accepted where this is expected to help alleviate the physical constraint

Secondary Actions

A secondary locational action may be used at another location to counter the potential impact on NTS Balance

Considerations:

- An NBP Buy could lead to an increase in supply in the area where there is a potential constraint, so locational action is generally preferable
- NTS balance is taken into consideration – e.g. if heavy after a locational sale then secondary action unlikely to be required
- Timing in the day – locational actions have an associated lead time so less effective late in gas day



Locational Market Training

Last year ICE Endex held some training sessions on how to use the ICE locational market, as well as other OCM products.

You can view the slides and recording of this session here:

Webinar: UK OCM Gas Spot Market Webinar (theice.com)

Capacity Surrender (Capacity Buyback)

National Grid may request to buy back Firm capacity rights in relation to a constraint, only after any Interruptible/Off-peak capacity has been scaled back.

What?

Capacity can be surrendered through **daily Surrender Auctions** - 'DBSEC' (Daily Buyback System Entry Capacity) and 'DBNEX' (Daily Buyback NTS Exit Capacity).

Capacity surrender at IPs will be processed in the same way. If a User has both bundled and unbundled capacity for surrender, unbundled will be selected first.

Requests to make Firm NTS Capacity Surrender Offers sent via ANS.

Process

User's Firm capacity entitlements will be adjusted in line with the accepted offer, post auction.

Posting offers – Users must post offers in the DBSEC / DBNEX auctions.

Acceptance – National Grid will review the surrender offers and make relevant allocations.

Nominations - Users are expected to manage nominations in line with their (reduced) capacity entitlements in order to avoid overrun charges.

Offtake Flow Reductions (OFR)

National Grid may require offtake Users to reduce demand for a set period of time by requesting offers for Offtake Flow Reduction at NTS Exit Points.

What?

If required, and in relation to a forecast NTS Exit Constraint, National Grid may initiate an **Offtake Flow Reduction invitation** via ANS notice.

The notice shall inform all NTS Users of the applicable NTS Exit Zone(s) where offers are requested and also the “Invitation Reference Number.”

Offer process

NTS Exit Users that wish to make an offer of flow reduction in relation to the invitation sent via ANS can do so by entering the offer details into Gemini Exit.

Offers need to include details of the **location, price** and **potential flow reduction** being offered by the User

Where National Grid accepts an offer, the relevant User must ensure that a revised Offtake Profile Notice (OPN) which reflects the accepted OFR offer is received no later than 30 minutes prior to the reduction period.

Constraint Management Agreements

National Grid may develop Contractual Agreements with one or more Parties to manage potential, enduring constraints.

What?

Where there is a prolonged period of perceived constraint risk on the gas network, and National Grid has sufficient notice, it may be considered efficient to tender for a Constraint Management Agreement.

An example of this could be a “turn-down agreement” where the User reduces flows on request, subject to pre-agreed contractual terms.

Process

Ad-hoc tender process, unless there is insufficient notice to do so.

Location and duration of any agreements would be dependent on the location, extent and duration of the perceived constraint risk.

Process is managed by our Contract Services Team, in collaboration with the Capacity Team.

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Updates

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Bacton Non-Ob Release

As we move into winter there is a decreased likelihood of Non-obligated capacity release which is shown on the Indicator (located on the website)

We will continue to assess the capability to release additional Non-obligated capacity above our baseline and will release where possible to support the EU

However, depending on the operational situation less or no Non-obligated capacity may be released

Moving into winter, REMIT will not be sent out if changes are made to the amount of Non-ob released, as it is a discretionary product.

Last Update - 13/10/2022

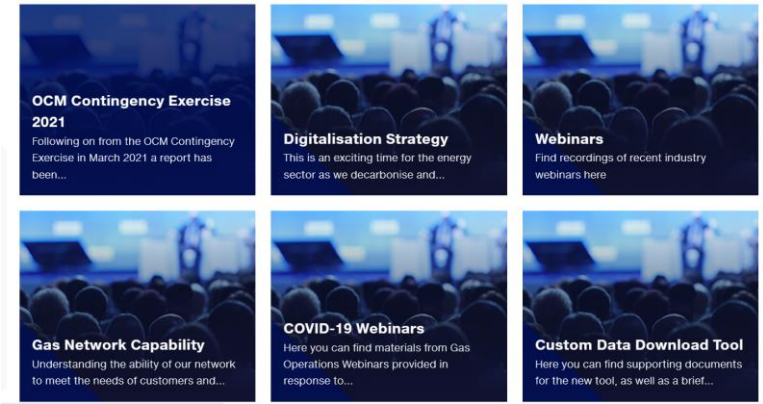
Week Commencing	17/10/2022	24/10/2022	31/10/2022	07/11/2022	14/11/2022	21/11/2022	28/11/2022	05/12/2022	December	January	February	March
Bacton IP Exit Non-Obligated Capacity release likelihood indicator												

Data Community Website

We are minded to remove this website when we move into a new gas company next year

Will still store forum recordings, packs etc in a central location on the new website

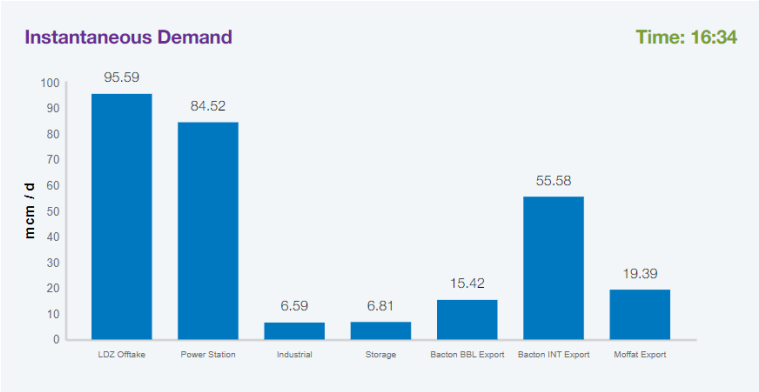
Any concerns/questions about approach please let us know



MIPI Updates

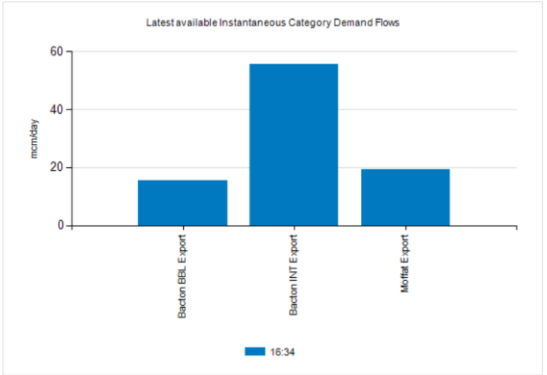
Instantaneous flows now available for each Interconnector

Previously live flows only available at aggregate level, with EOD flows split



Interconnector Export

Interconnector Export Totals	Instantaneous Flows (mcm/day)					
	16:24	16:26	16:28	16:30	16:32	16:34
Bacton BBL Export	15.32	15.36	15.36	15.36	15.36	15.42
Bacton INT Export	55.59	55.59	55.73	55.73	55.73	55.58
Moffat Export	19.37	19.41	19.36	19.45	19.39	19.39



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Next Forum

The next Gas Operational Forum will take place on the 24th November.

Please send any topic requests to:

Box.OperationalLiaison@nationalgrid.com

Register now at:

In Person
https://www.eventbrite.co.uk/e/gas-operational-forum-november-tickets-444668103267

Online
https://www.eventbrite.co.uk/e/gas-operational-forum-november-online-tickets-444670169447

Register for Distribution List
https://subscribers.nationalgrid.co.uk/h/d/4A93B2F6FAF273DE