

**Gas System
Operator**

Gas Operational Forum

London Radisson Grafton
25th October 2018

nationalgrid

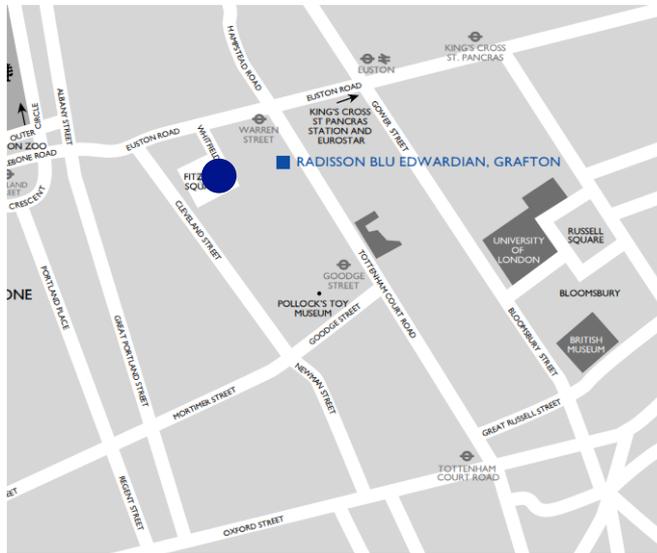


Health & Safety

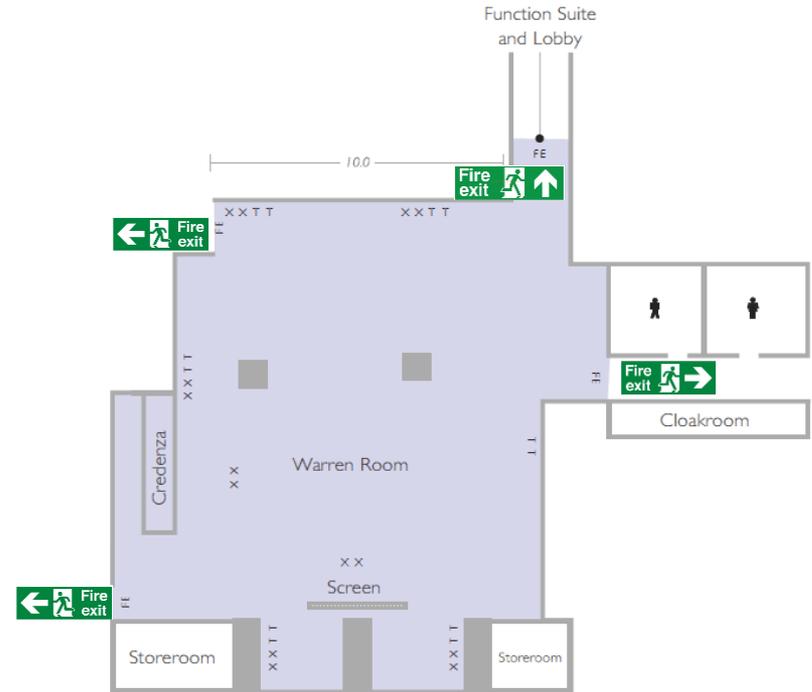
No Fire Alarm testing is planned for today

In case of an alarm, -please follow the fire escape signs to the evacuation point

This is at the rear of the Hotel by Fitzroy Square



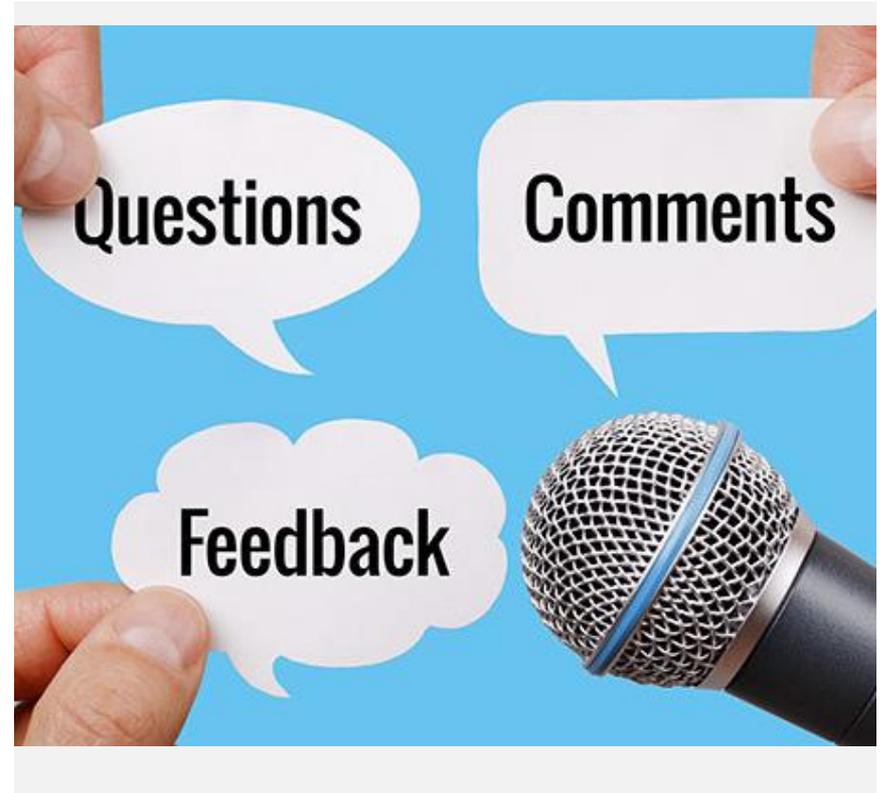
Warren Room Fire Exits



Feedback & Questions

For any questions during the forum you can:

- Ask during the presentations
- Speak to an NG representative during the break
- Utilise the Query Surgery time at the end of the Forum



Agenda

01	Previous Operational Forum Actions and Feedback since last forum	09:30
02	Operational Overview	09:45

Customer Requested Topics

03	Brexit Update	10:00
04	Winter outlook	10:10
05	Preparedness for winter - discussion	10:25
06	NTS Overview	11:05
07	Xoserve Update	11:20

Topics of Interest

08	Operational Data Enhancement paper – feedback so far	11:35
09	Queries this month	11:45
10	Forum dates 2019	11:50
11	Axe the Fax	11:55

Breaks:

Morning Break

10:45 – 11:05

Lunch Break & Query Surgery

12:00 onwards

National Grid and Xoserve Attendees

national**grid**

xoserve

Physical Operations

- Karen Thompson
- Craig James
- Martin Cahill

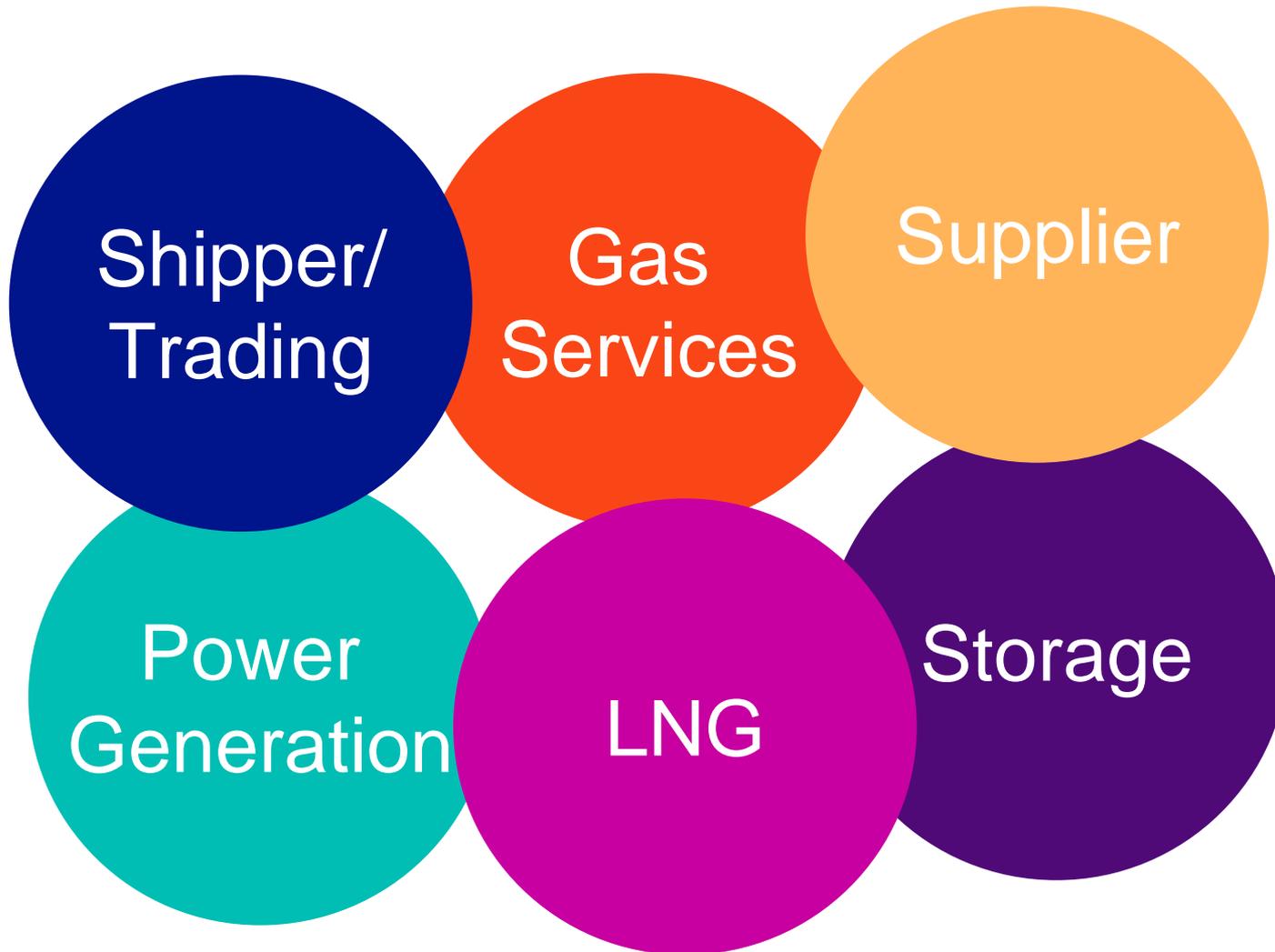
Commercial Operations

- Cara Finn

Customer & Stakeholder Relations

- Dave Turpin

Attendees Today



01

Previous Actions and Feedback since last Forum

October 2018



Previous Actions

Item	Action	Detail
Proposals paper - responses	Industry to provide any responses to Operational Data proposals paper by the 6th November	Paper describes proposed enhancements to operational data. Has been sent out to distribution list, and is also available on Operational Forum website along with latest pack
API Guidance	National Grid to share API guidance documents – how to setup	Link to API guidance document included in previous forum minutes (on website). Guidance documents found on Operational Data page

Feedback Since Last Forum

Feedback	Description	Actions
Timing of September Forum	Timing of September forum was not ideal with end of the gas year	Dates next year to take this into consideration – proposal to move September 2019 forum 1 week earlier
Queries	See separate agenda item	
Brexit Forum	Some concerns regarding preparation for day 1.	Ofgem/BEIS providing update in agenda item at this forum
Interesting Days October	Information requested regarding NG Trading on the 1 st /2 nd October and 21 st October	Preliminary findings show that on both events, GNCC trading was conducted in line with agreed framework. Further work is required to understand the full circumstances – to be presented at November forum

Pre-emergency Commercial Tools

First Webex session held 22nd October and positively received. General trends of feedback received so far:

- Happy with the approach.
- Keen to see the scope expanded to cover other infrequently used tools.
- Functionality of the locational trades at IPs process unsatisfactory.
 - Document details the process based on current system functionality, explores the alternative options available and evaluates the associated risks to each. Shippers are free to choose the option best suited to them.
 - Longer term, change requests are being explored with Xoserve to reduce risk to Shippers

Access

Guidance documents can be viewed here [Pre-emergency Commercial tool signpost visual](#)

Or via the following page under supplementary reports <https://www.nationalgridgas.com/data-and-operations/transmission-operational-data>

Further webex planned for 1st November – please email box.NTS.EnergyBalance@nationalgrid.com for details.

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02

Operational
Overview

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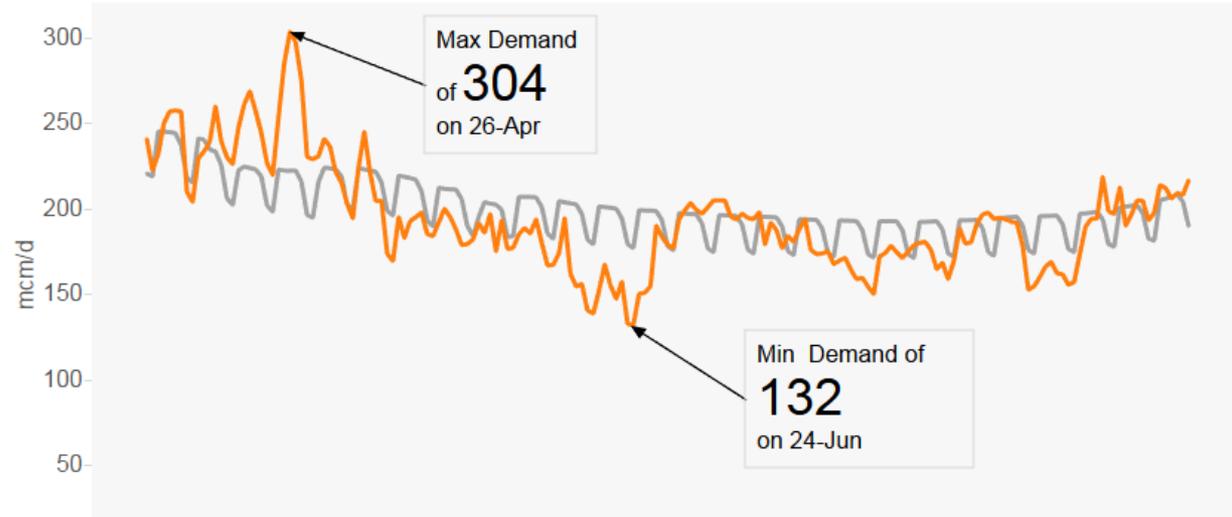


NTS Demand

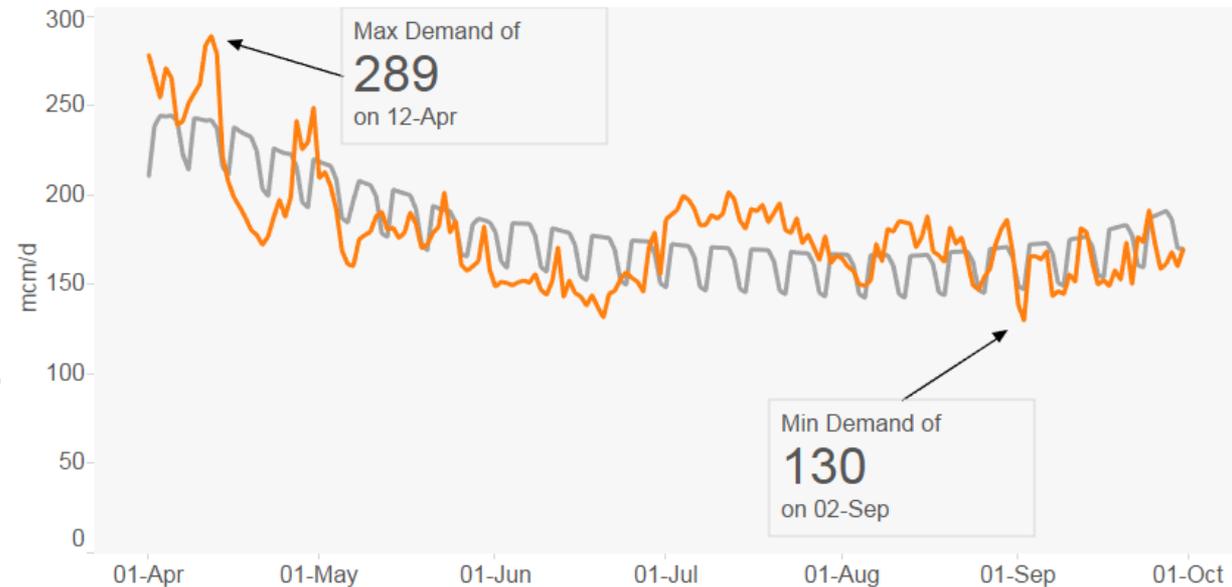
Unseasonably high temperatures during parts of **April and May** saw summer demand drop below seasonal normal.

Since then NTS demand returned to expected levels and **stayed consistent compared to levels of demand seen last year.**

Demand vs Seasonal Norm - Summer 2017



Demand vs Seasonal Norm - Summer 2018



■ Demand ■ SND

Components of NTS Demand

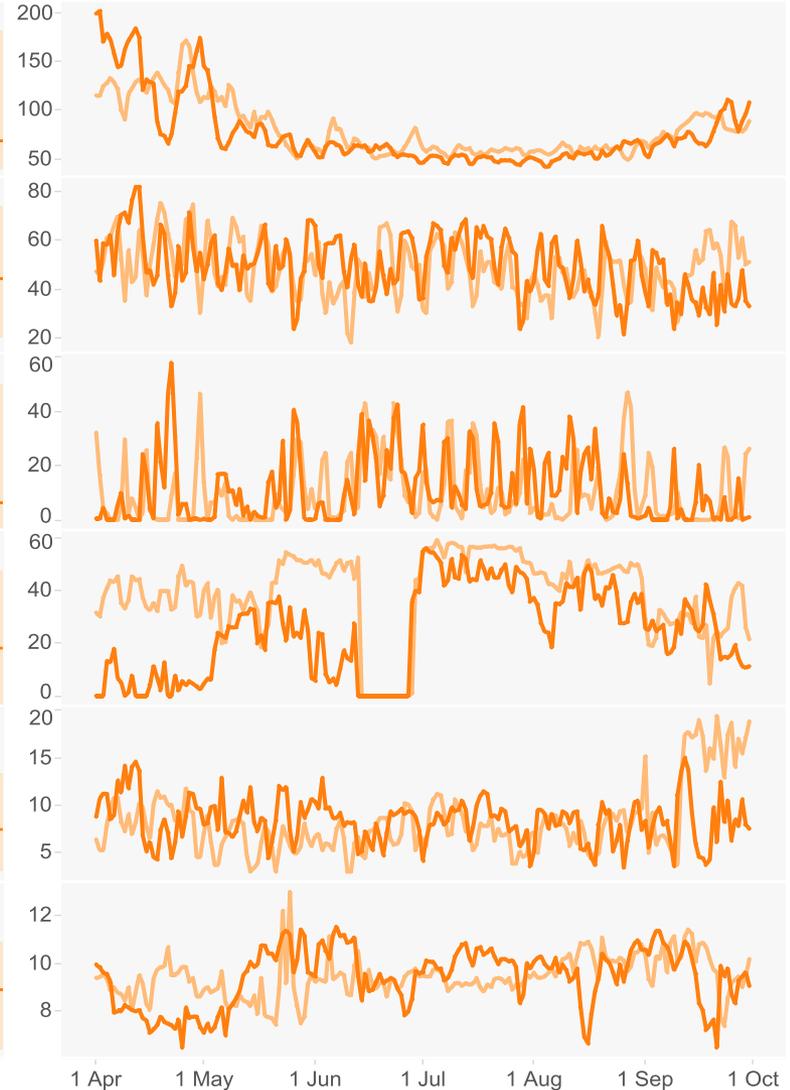
With gas year 17/18 now concluded, demand profiles for the summer remained largely consistent compared to last year

The exception to this was **IUK exports**, which were lower than last year, particularly during the first half of Summer.

Min/Max/Mean Volume (mcm/d)



Volume Trend (mcm/d)



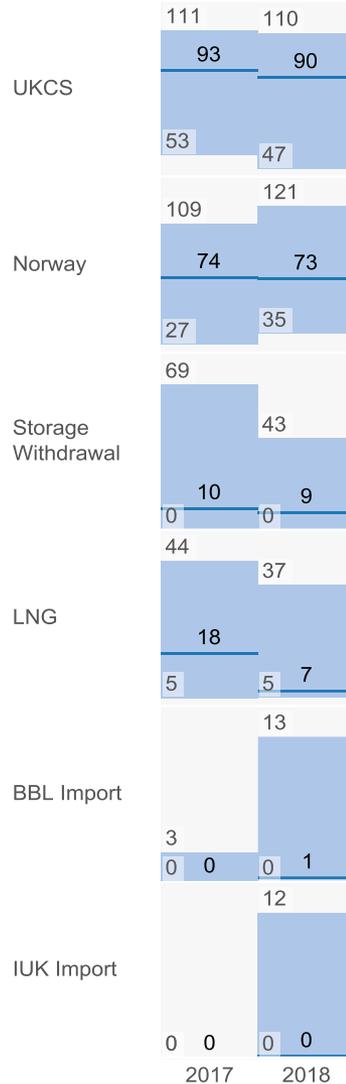
2018 2017

Components of NTS Supply

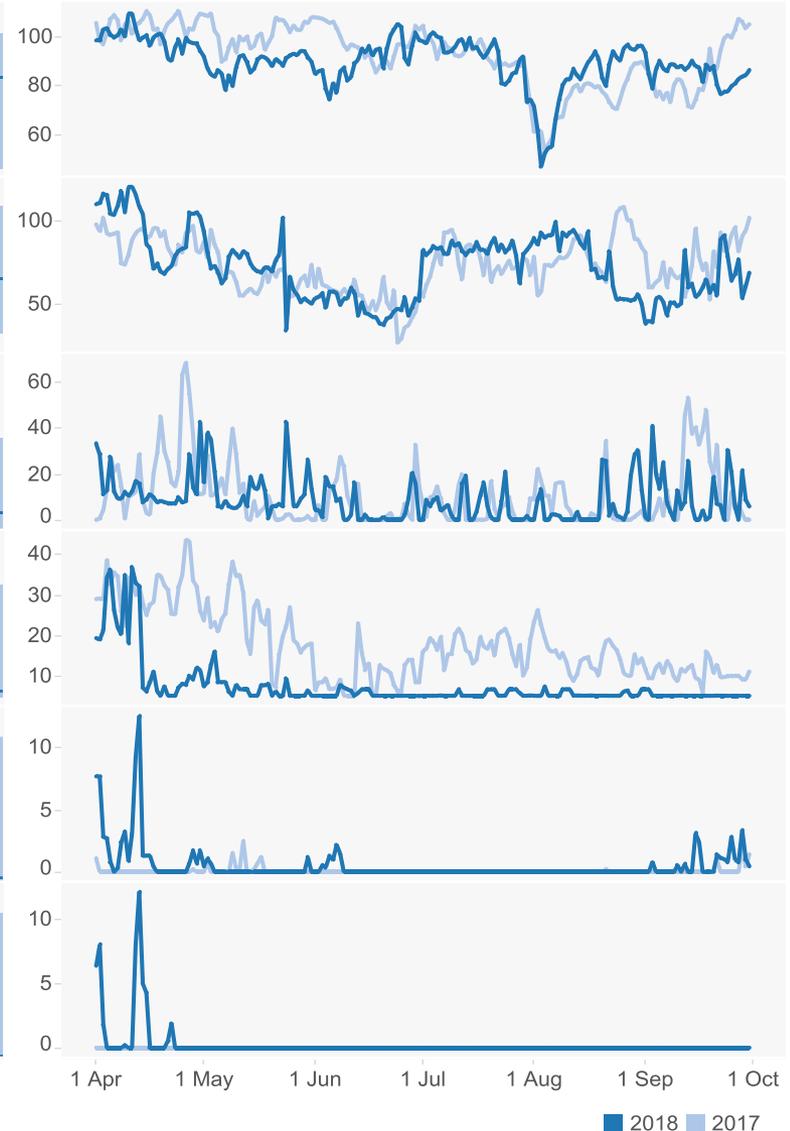
Whilst most sources of supply remained consistent compared to last year, supplies from **LNG reduced significantly**.

Relatively high gas prices in the Asian markets could be a key driver for this change.

Min/Max/Mean Volume (mcm/d)

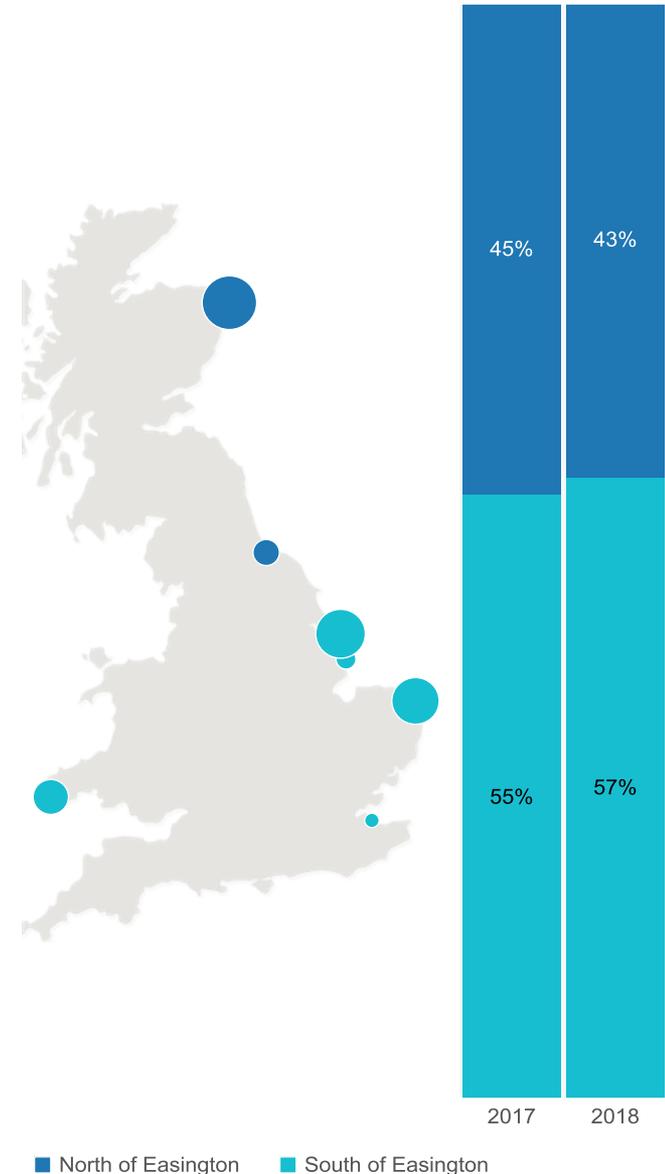
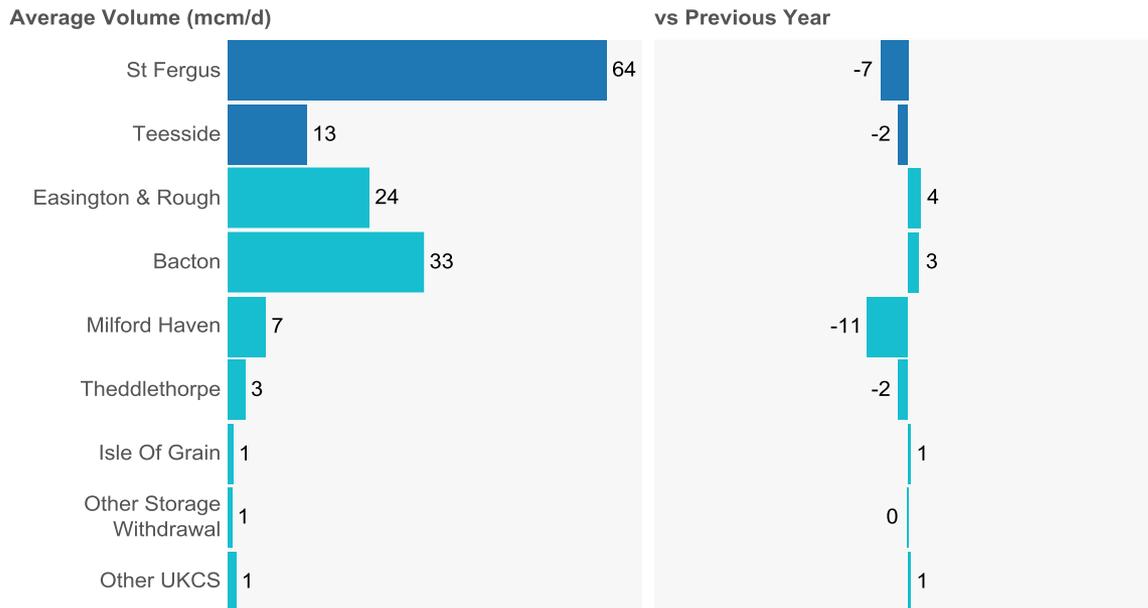


Volume Trend (mcm/d)



Location of NTS Supply

Proportionally, there has been **less gas supplied to the NTS in the North**, when compared to last Summer.



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Brexit Update

Ofgem/BEIS

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Winter Outlook

Winter 2018/2019

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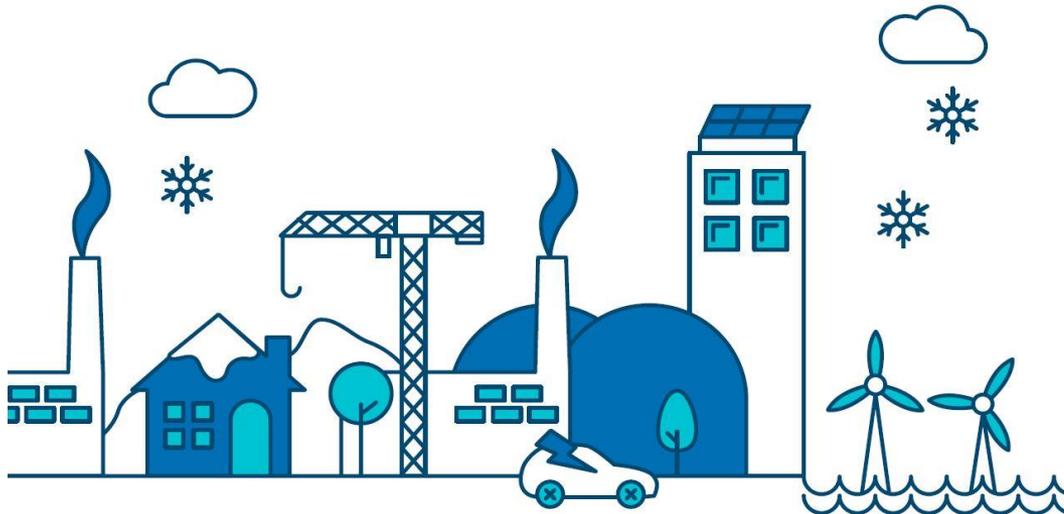


Winter Outlook

Winter Outlook 2018/19 was published on the National Grid website on the 11th October

This report draws together our analysis of the supply and demand of both gas and electricity for the upcoming winter, along with our initial view.

<https://www.nationalgridgas.com/insight-and-innovation/winter-outlook>



Get Involved

Email:

marketoutlook@nationalgrid.com

Twitter:

[#NGWinterOutlook](https://twitter.com/NGWinterOutlook)

Linkedin Future of Energy page:

<https://www.linkedin.com/groups/8129147/>

To hear about industry events, or find out as soon as other documents are published, sign up to the mailing list at the following link:

<http://eepurl.com/dClp5X>

Winter Outlook Feedback

You said

A one-pager simply showing *Winter Review* and *Winter Outlook* highlights would be helpful.

More information relating to neighbouring markets.

More detail please, too high level.

We did

We have inserted a headline page with key figures from the publication.

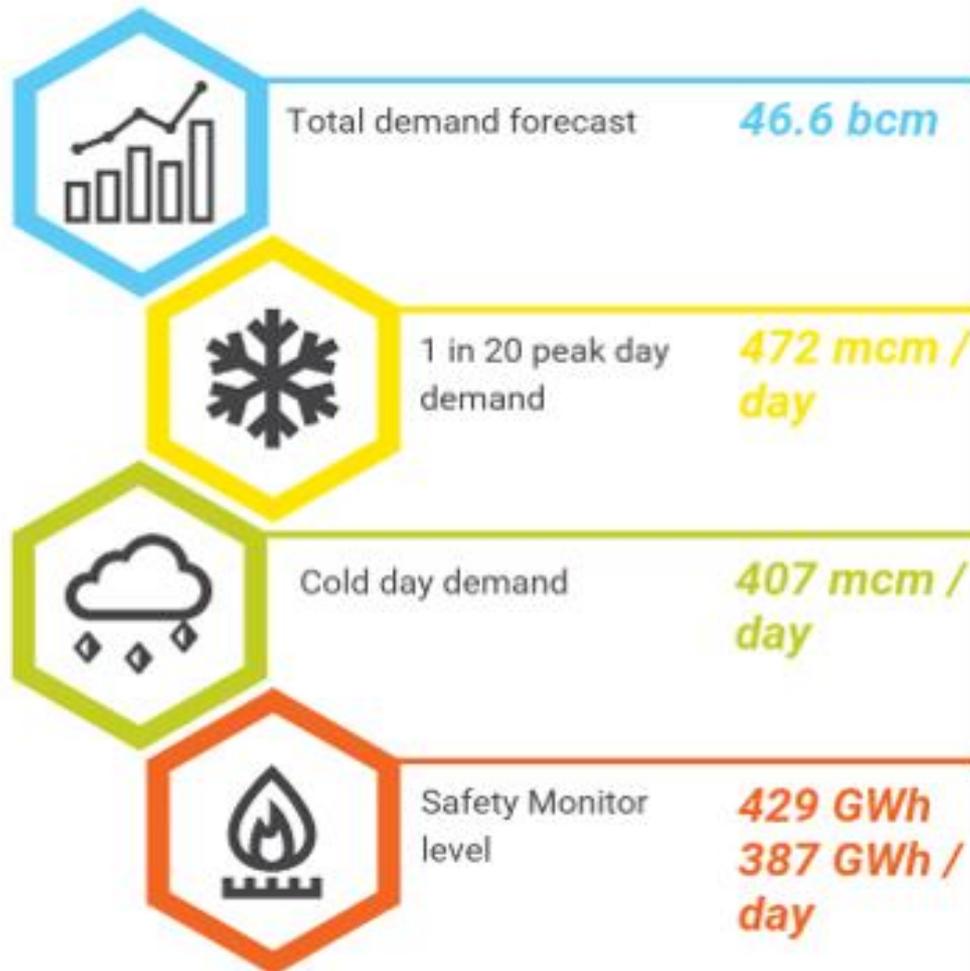
We continue to explore EU and Continental markets and consider the impact of their behaviour on GB.

As with the *Future Energy Scenarios* document, we will be including the data workbook on our [website](#) to accompany the 2018/19 *Winter Outlook Report*.

Winter Outlook is designed to meet your business planning needs

We engage across Industry to develop our Future Energy scenarios

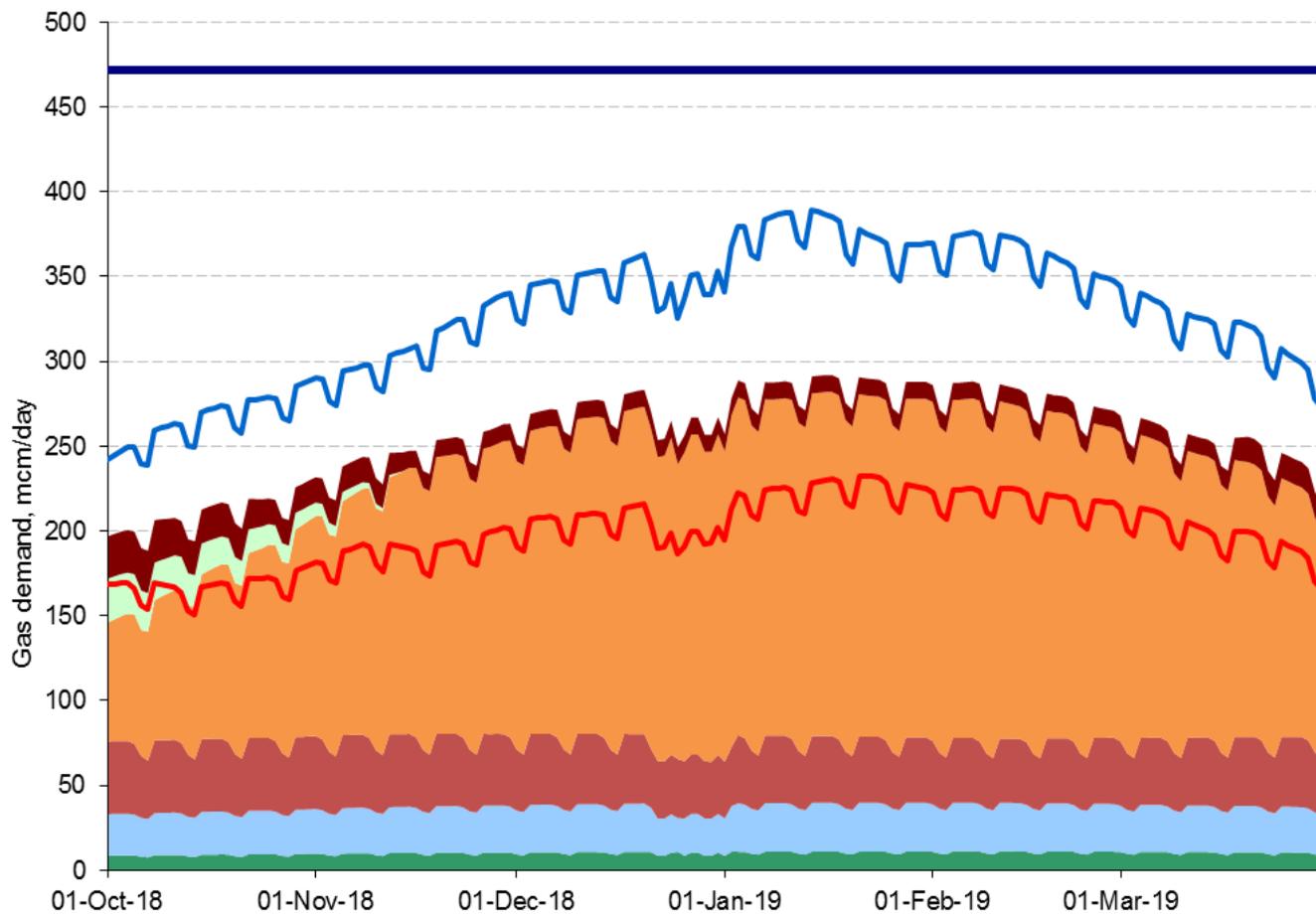
Headline figures



Gas key messages

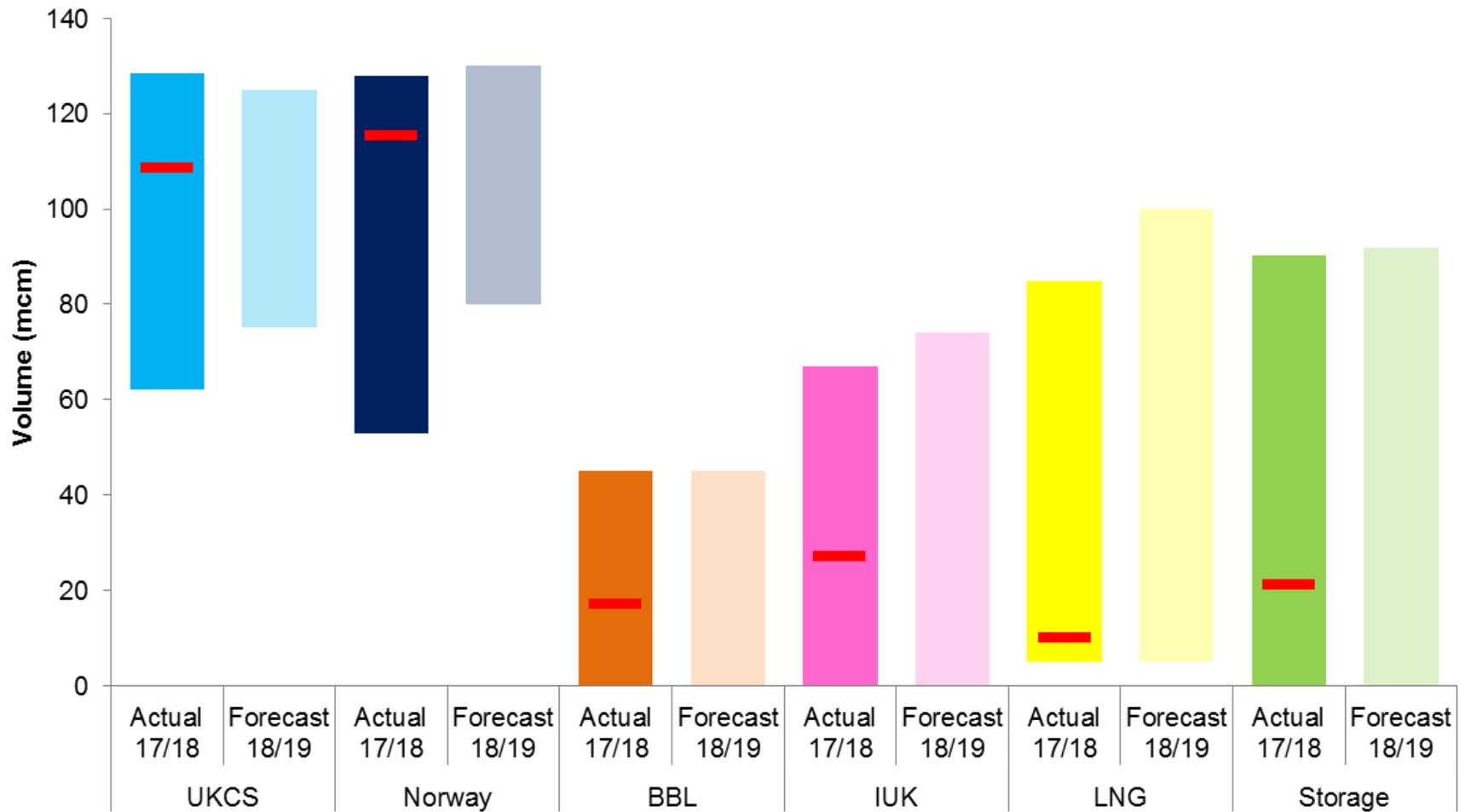
- 
- Our modelling demonstrates there is sufficient diverse and flexible supplies of gas to accommodate all of our security of supply scenarios.
 - We expect gas demand to be lower than last winter's weather corrected outturn. The forecast for this year is 46.6 bcm.
 - UKCS and Norway are expected to dominate stable 'base' supply provision
 - Storage, interconnectors and LNG provide additional capability along with flexible response for the market
 - We have enhanced our industry engagement and winter preparations from 1 March experience
 - Instigated industry engagement in respect of the gas notification process

Gas demand



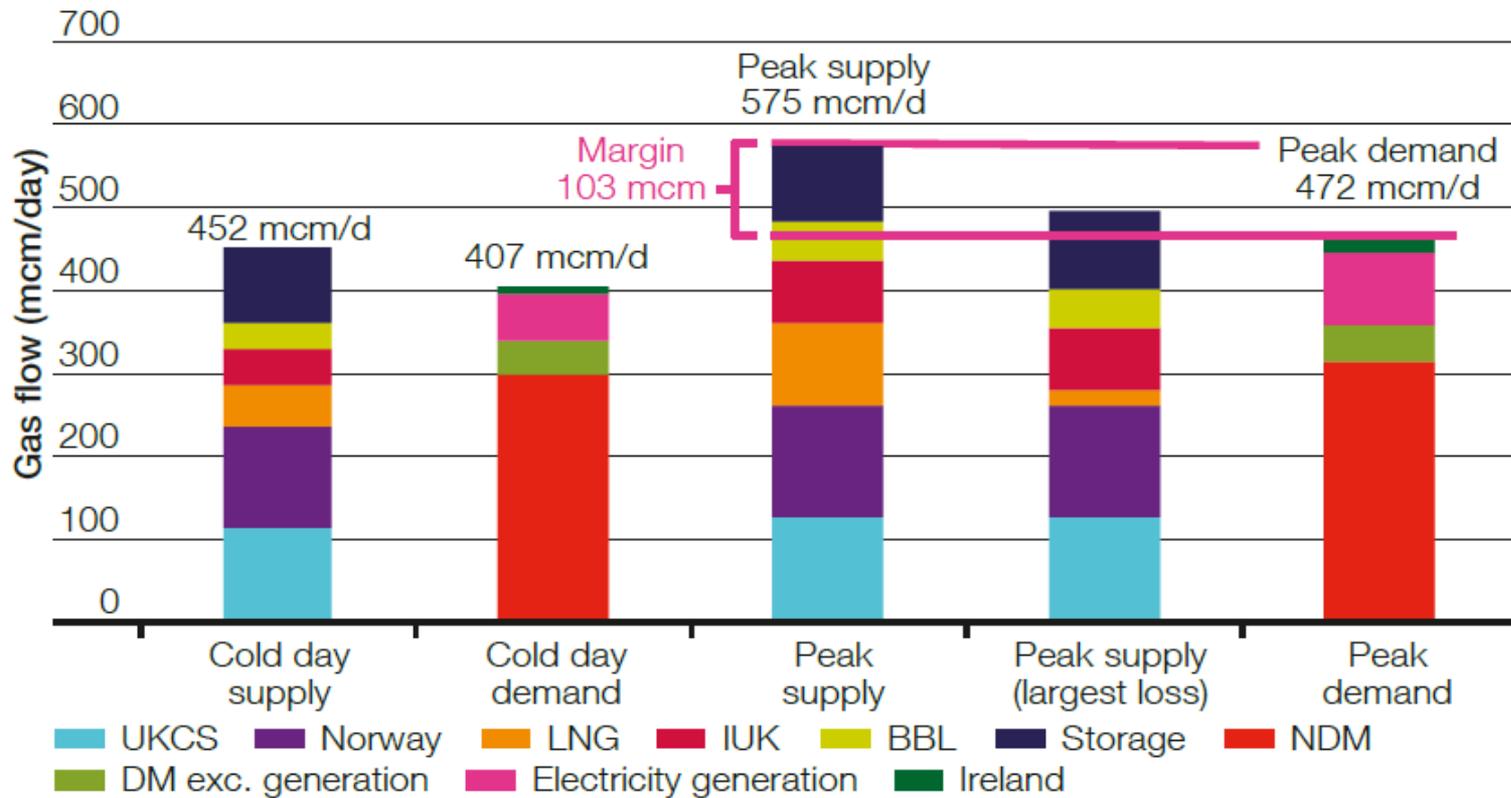
- Ireland
- Electricity generation
- Interconnector
- Peak day
- Warm demand
- Non-power daily metered
- Non-daily metered
- Storage injection
- Cold demand

Gas supply

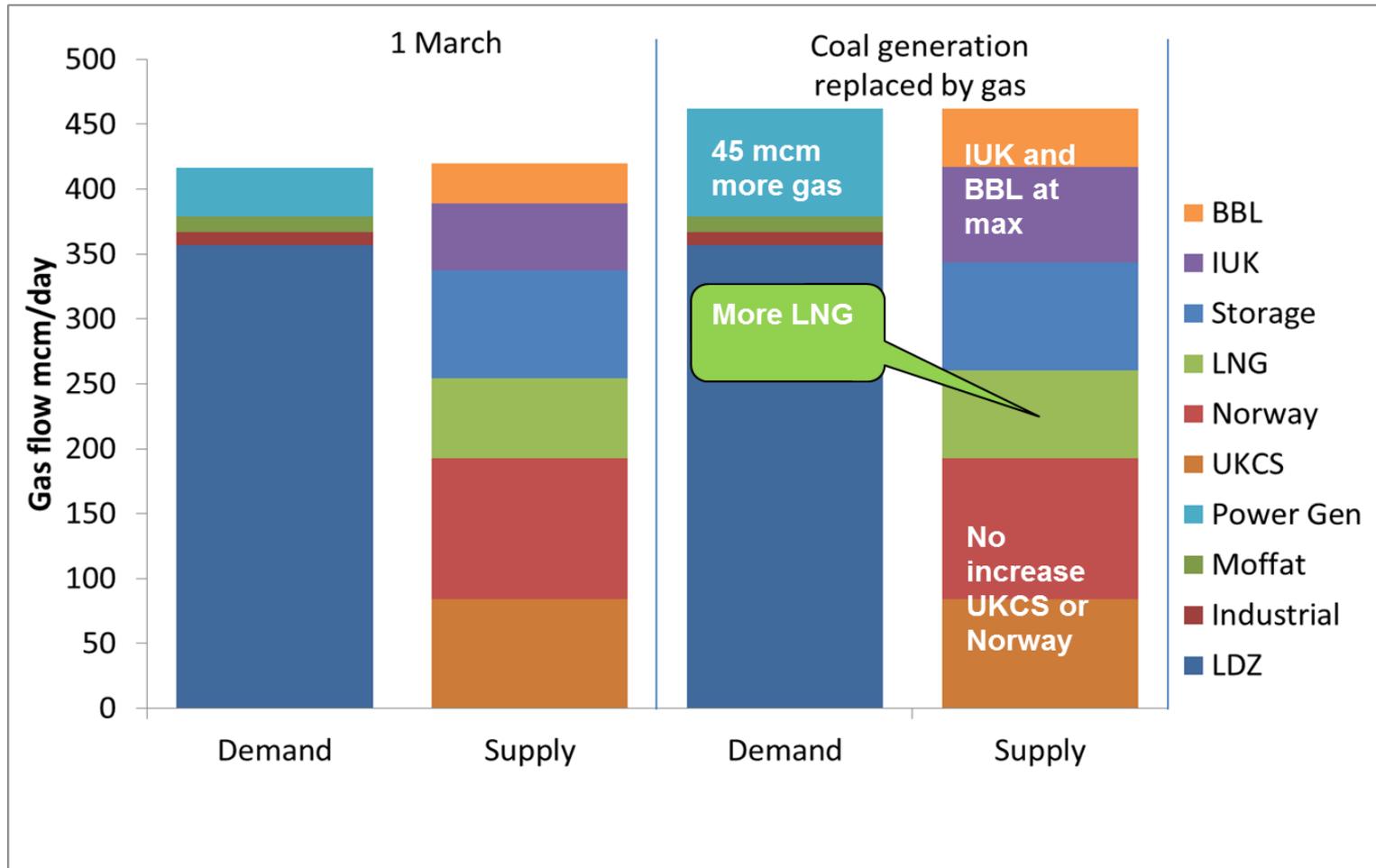


Gas supply & demand

- Modelling demonstrates sufficient supply margin to accommodate all security of supply scenarios



Electricity generation on 1 March 2018 with coal generation replaced by gas



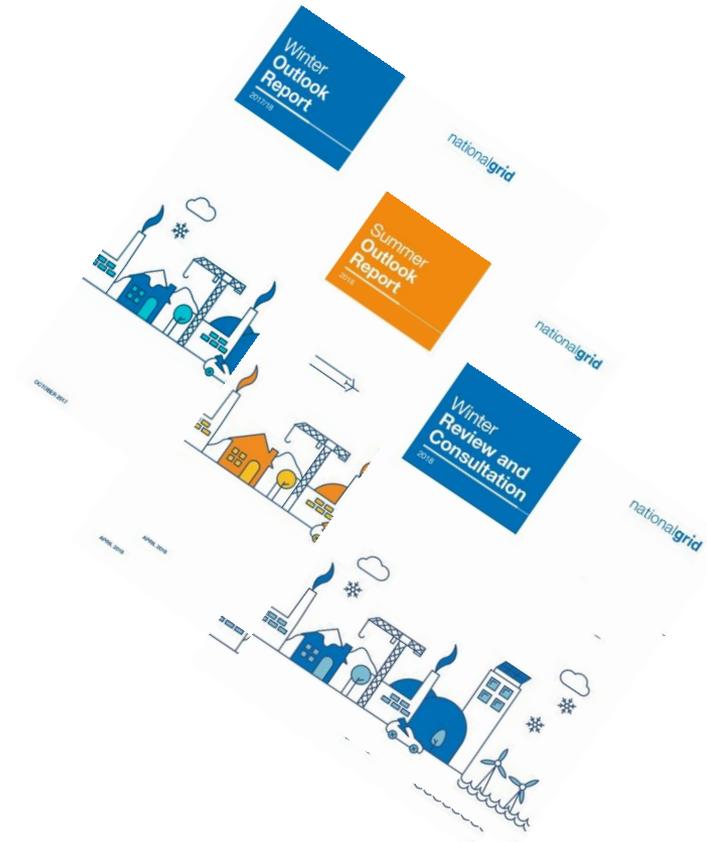
Helping you keep up to date

View the full interactive report online

Review the latest operational data

Subscribe to receive notifications

Register for our operational forums



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Preparedness for Winter

Discussion

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Preparedness for Winter

To discuss – do you feel prepared for upcoming winter?

Examples of actions from previous discussion around 1st March:

- **UNC Mod 0669R reviewing Gas Deficit Warning and Margins Notice arrangements (Separate working group).**
- **More detail provided around pre-emergency tools (see agenda from September forum).**
- **Ensure clear actions via ANS.**
- **Issue media package in line with actions.**
- **Enhanced monitoring of systems e.g. GEMINI.**
- **Further scenarios developed such as no coal – see winter outlook document.**

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Operational Overview

Craig James

nationalgrid



The National Transmission System

Our role

To connect millions of people to the energy they use safely, reliably and efficiently

We own & operate

7,660km of high pressure pipelines, 23 compressor stations and over 600 above ground installations

We transport

Over 3 times the energy provided by electricity (over 995TWhrs) each year

The National Transmission System, or NTS, comprises of

Terminals

Storage Sites

Network Offtakes

Milford Haven

St. Fergus

Barrow

Burton Point

Teesside

Easington

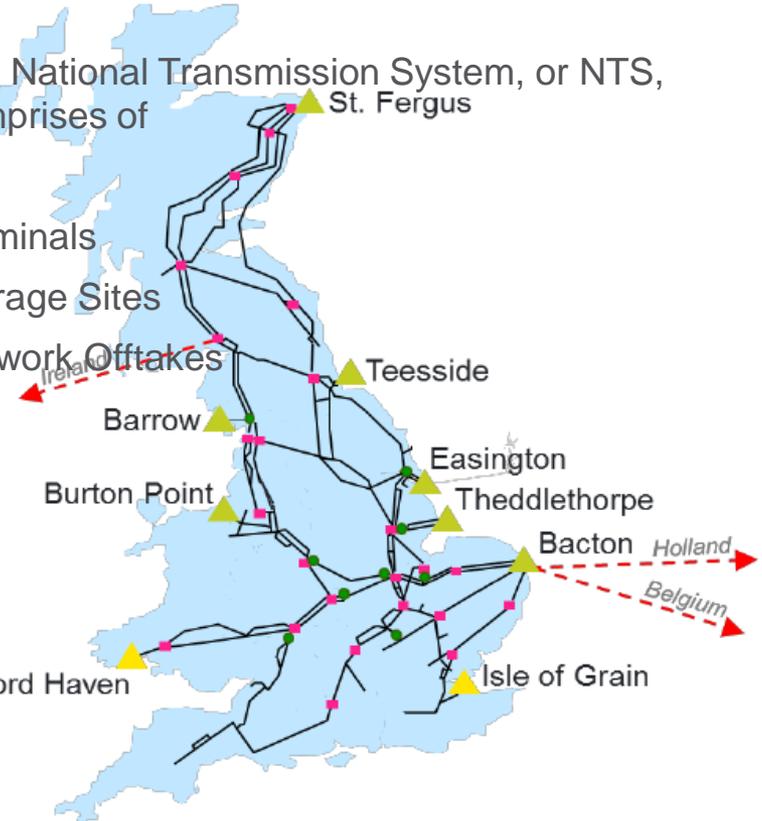
Theddlethorpe

Bacton

Holland

Belgium

Isle of Grain



Energy

The NTS typically operates between pressures of **40 and 90 bar**, and typically stores up to **370 mcm** (3770 GWh) of gas in the pipework (linepack), equivalent to the demand that could be expected on a **cold winters day**.

Daily demand can vary from c150 mcm in the summer, to our record demand level of 465 mcm. On the average year up to **3 times more energy** is transported in the gas network than the electricity network

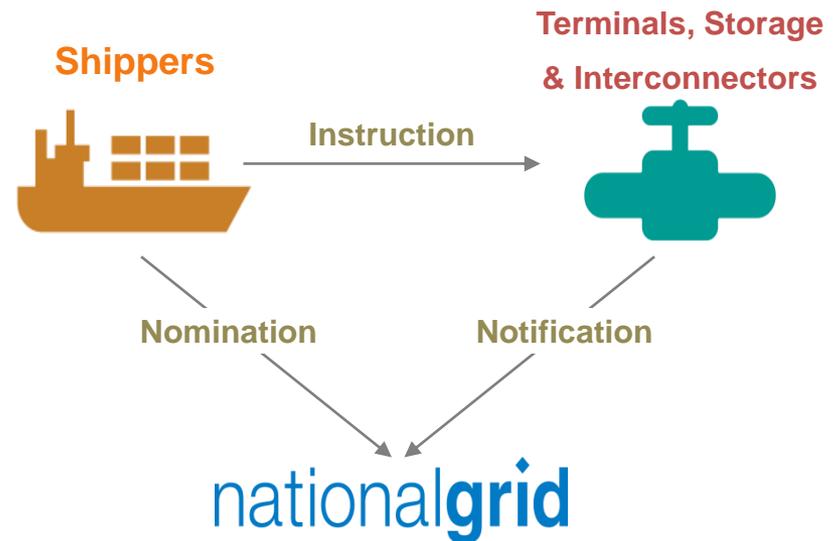
Compressors on the network are typically range from 7 MWh to 35 MWh, and when online together can require more than **30 GWh of fuel gas** in a day. This is equivalent to the yearly gas usage of **over 2000 homes**

NTS Management Principles

Our strategy is determined by the information supplied to us by our customers, as we aim to meet every assured pressure and ANOP throughout the gas day

Commercial **nominations** are received through Gemini which tell us the **amount of energy** that is expected to flow. Physical **notifications** tell us the **volume and location** of where the gas will flow.

As shippers revise their nominations, terminals, storage sites and interconnectors adjust their notifications



NTS Management Principles

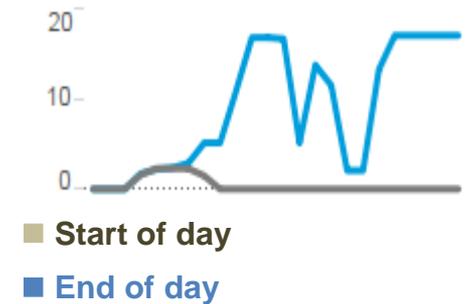
Our strategy and planning begins up to **two weeks ahead** as we receive clearer weather and demand forecasts and more intelligence on likely entry point flows. We manipulate stock on the network to maximise flexibility.

Within-day changes to flows necessitates a **less proactive and more reactive** strategy

Around **1,600** Notifications received daily

Around **180** daily reconfigurations of the NTS

Revised Notifications can significantly change the profile of the gas flow that we have to manage:



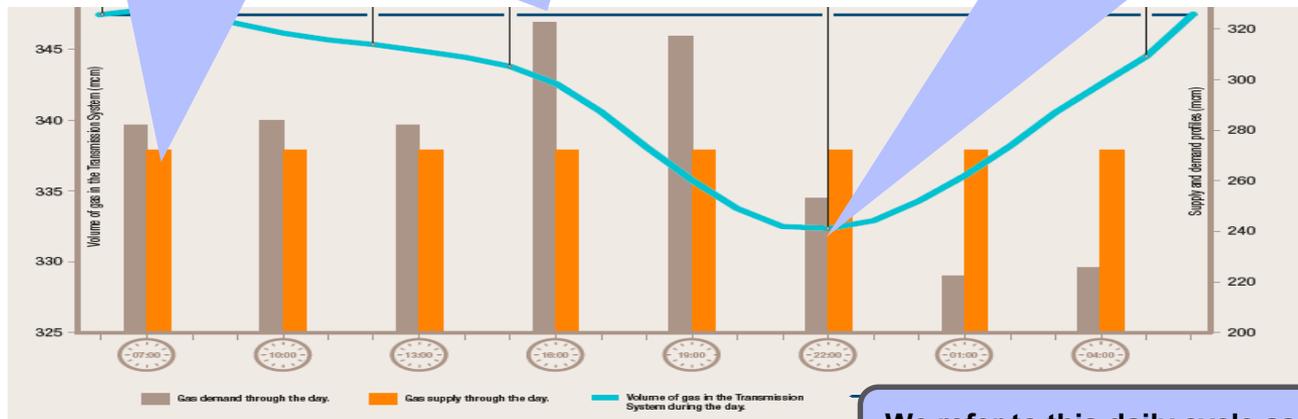
Pressure Management

Pressures on the network are, above all else a, product of the gas we have available in the pipes. This can vary significantly both day to day, and within day

Gas traditionally entered the network at a steady rate across the day (Orange bars)

Demand traditionally peaks during the day (grey bars)

This means there is usually a dip in volume, and so pressure, during the afternoon (blue line)

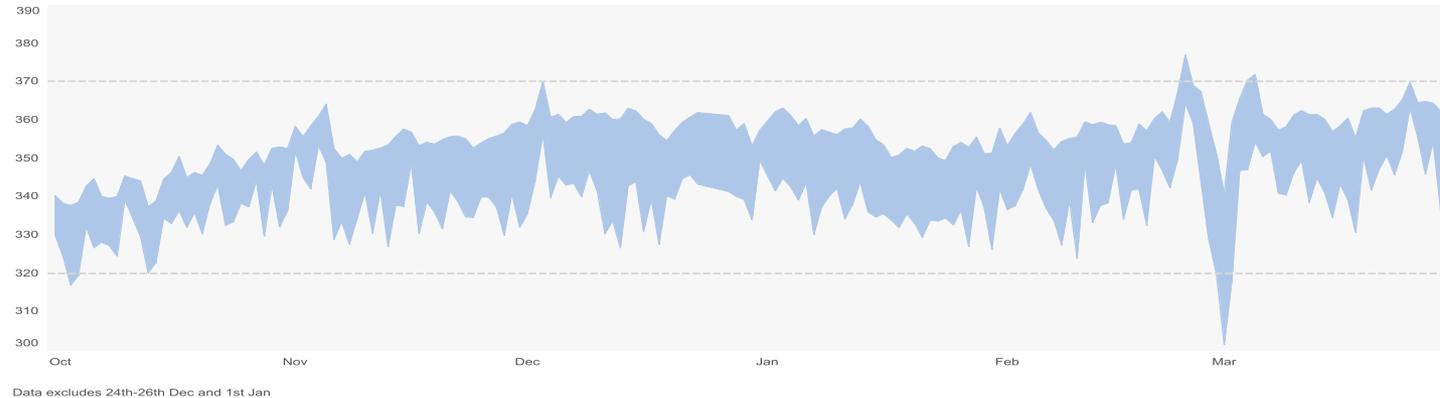


We refer to this daily cycle as 'within day linepack swing'

Pressure Management

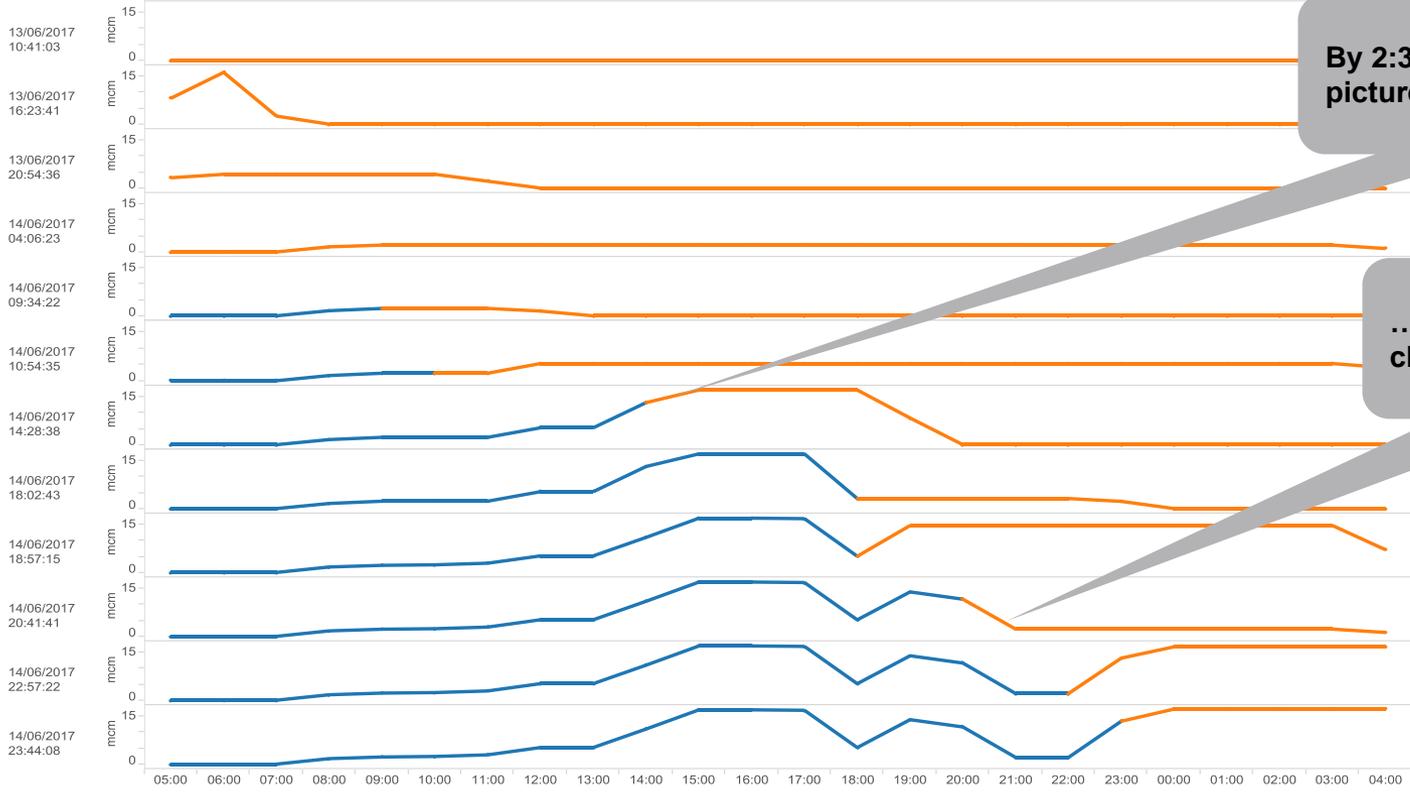
As we see our **customers** requiring more **flexibility** we are seeing a move away from a traditional supply/demand profile. The result is a lower within-day stock position and typically **lower pressures** in certain areas of the network. Winter 17/18 regularly saw swings in excess of 30 mcm/d. Something unheard of 10 years ago

Daily Linepack Range - Winter 2017/18



Customer Flexibility

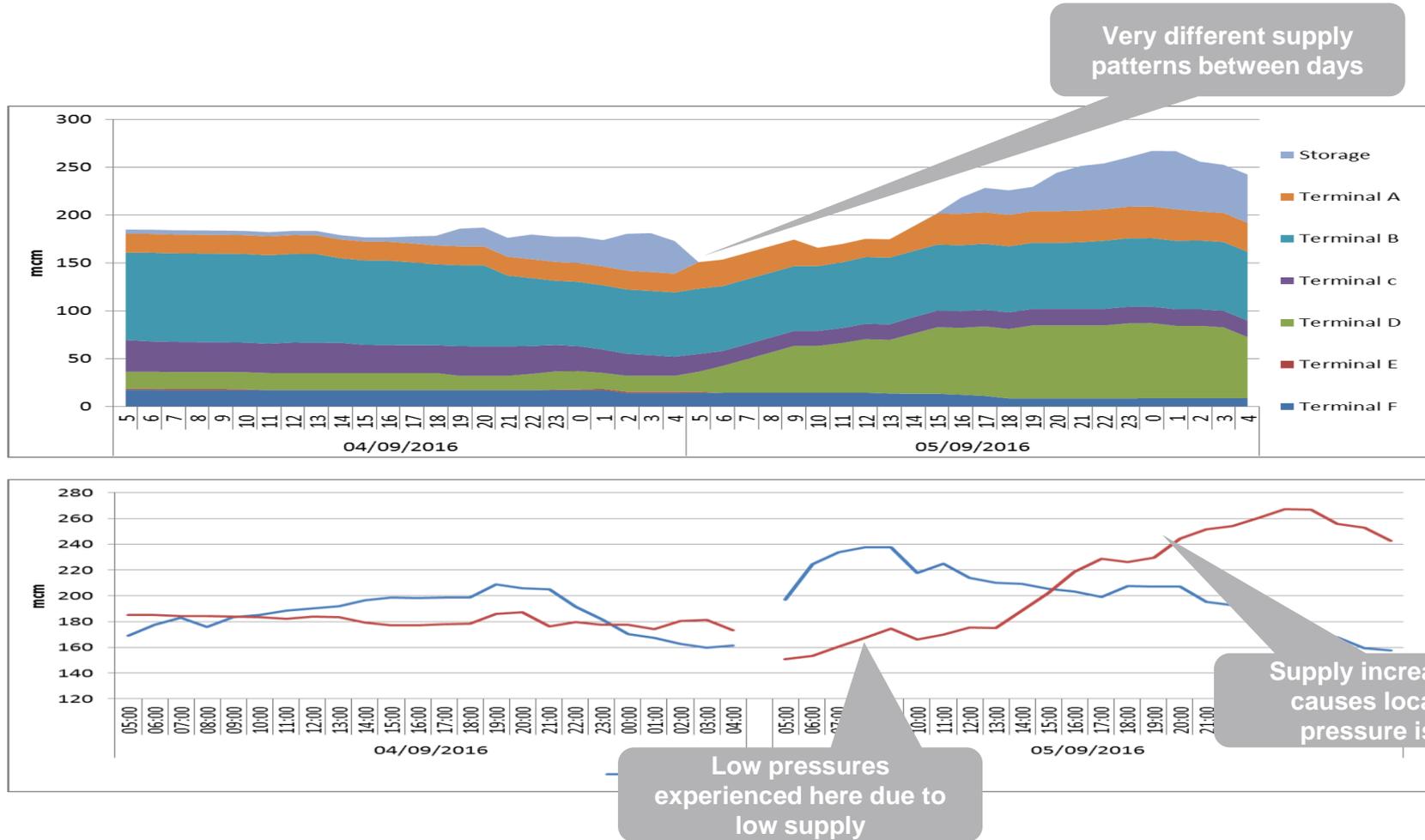
Notifications profiles for a single storage site for gas day 14/06/2017



By 2:30 on the day the picture has changed...

...and it continues to change throughout the day.

Large Changes in Supply Day to Day

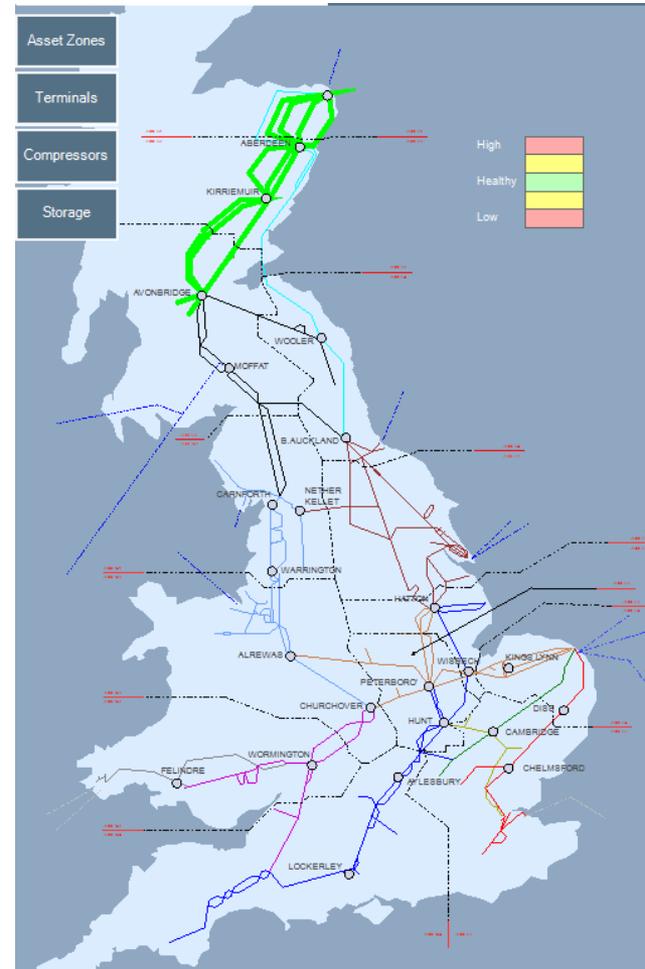


Linepack Management

Our National Linepack figure as quoted on MIPI is created from 12 zones, each containing a major pipework system.

The network can be configured to manage linepack (and therefore pressure) in specific zones via the use of valves and compressors.

As such, a drop in linepack nationally is not always observed locally and will be managed as strategy dictates



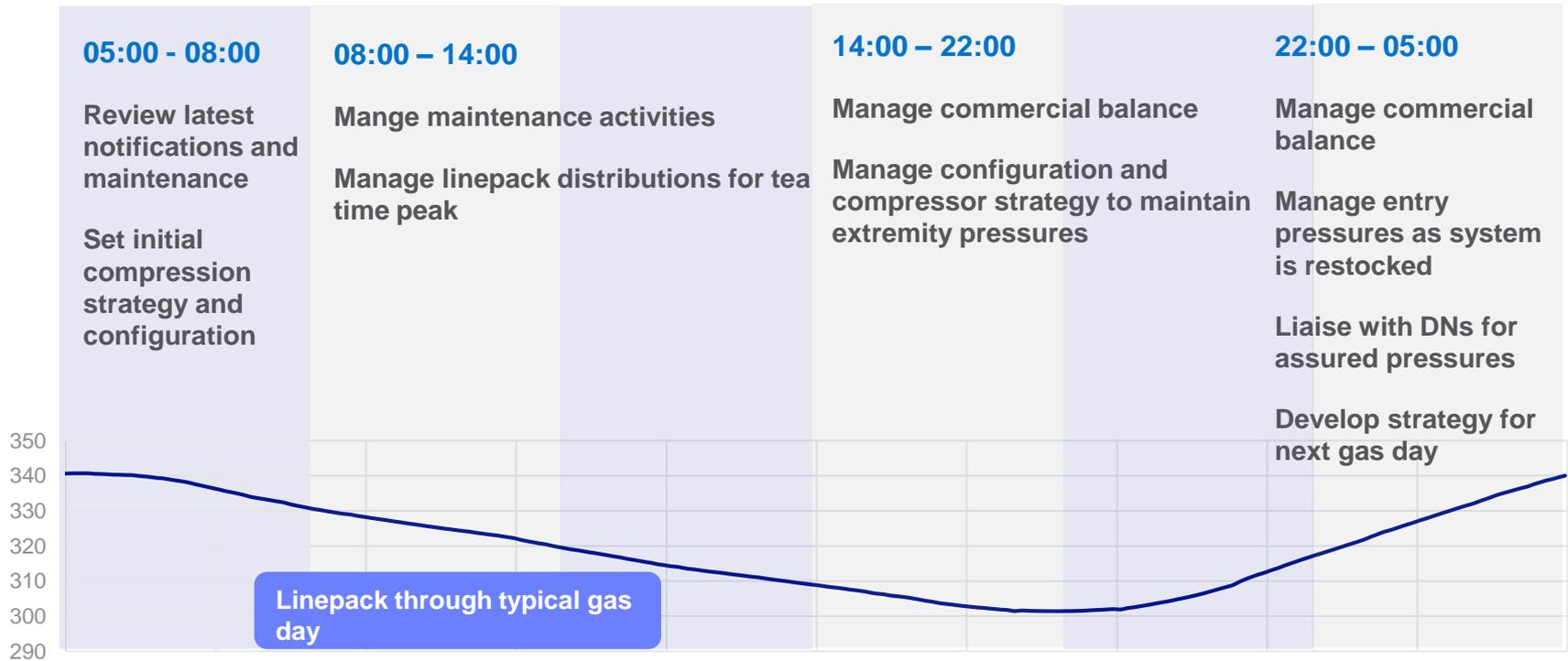
Pressure Loss in a Pipe

Whenever there is a flow through a pipe, there will be a loss in pressure from one end to the other. This is due to frictional losses which are proportional to flow velocity. The higher the velocity, the greater the loss

This effect has a large impact on how we manage pressure on the network. At the **extremities** of the network where **capacity is lower**, **pipes are typically smaller** and operate at **lower pressures**. All of these aspects result in a relatively **high gas flow velocity** and therefore pressure losses are exacerbated.

To maintain suitable extremity pressures it is often necessary to maintain higher pressures on the major transportation arteries. On days where we encounter large linepack swings we often need to sacrifice pressure in certain network locations in order to maintain **suitable extremity pressures**

Daily Challenges



Transparency of Operation

We appreciate that the **day to day configurations** used by the Gas National Control Centre and resultant pressure changes are **difficult to predict** from an outside perspective.

To improve the transparency of our operation we have started to supply **more information** including our **pressure forecasting service** and our daily **linepack information**.

Both products are **publicly available** and available on our website



Pressure Forecasts

Provides a week ahead outlook on the **expected pressures at System Entry Points**

Created using the **best available information and forecasts for supplies and demands**

All data subject to change



Linepack Utilisation

The report is published **three times daily** and uses a combination of physical delivered and offtaken quantities combined with supply and demand notifications for the rest of the gas day

Each iteration will provide and the forecast **minimum linepack** and the **time** at which it is expected

Gas Day		Opening Linepack	
24/10/2018		352.71	
Run Time			
05:00	12:00	18:00	
Calculated Linepack minimum (MCM)			
334.1	335.2		
23:00	22:00		

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Xoserve Update

October

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UIG Nomination intermittent publication

Issue and Impact

- The UIG Nomination publication was intermittent between Saturday 29th September and Sunday 30th September
- This was due to an annual AQ activity process taking longer than expected to completed and resulted in a delay to UIG Nominations being published.

Resolution Plan

- The AQ processing was split into smaller files and loaded in between the UIG Nomination runs on 30th September.
- Xoserve are carrying out a root cause analysis and have identified a process improvement that is currently in testing.
-

Jobs schedule not automatically triggered

Issue and Impact

- An upgrade to the Jobs scheduler (control M) that automatically triggers jobs to run within Gemini was implemented on Sunday 30th September.
- As a result of the upgrade, it was identified that some batch jobs were not triggered automatically which impacted EU/GB Auctions, Trades and EU Nominations
- Resolution plan
- We believe that all impacts were mitigated by manually triggering each job to ensure that all jobs were completed in time for the end of gas day
- The Job Scheduler upgrade was reverted back to the previous version and we are currently working with the vendor to ensure this issue does not re-occur when carrying out any future upgrades.

Gemini Exit jobs failing

Issue and Impact

- We identified that there were some scripts missing following the work carried out during the Gemini maintenance window on Sunday 7th October which meant that some of the jobs were not able to complete successfully.
- The missing Gemini Exit scripts were replaced and catch up activities were performed
- All catch up activities were completed by 07:30, therefore no Gemini Exit auctions were impacted

Resolution Plan

- We are working with the teams involved to ensure that any additional steps or tasks can either be added to the plan or captured as part of a check list.

Communication between Xoserve Service Desk and Customers

- A customer raised a ticket with Xoserve Service Desk on Sunday 30th September as they had not received any EU Nomination files all day.
- Due to an oversight within our Service Desk and Gemini teams the customer was not updated following resolution of their ticket
- We have reiterated with our Service Desk and teams the importance of keeping our customers updated with resolution of their tickets and that the correct process is followed in future.

Communication between Xoserve and GNCC

- Xoserve have received feedback that the communication from Xoserve to the GNCC control room did not provide enough information for customers. throughout the UIG issue on 29th and 30th September
- Xoserve are committed to improving customer experience and will continue to work with National Grid to improve customer communications



UIG Update

November 2018

UIG Task Force

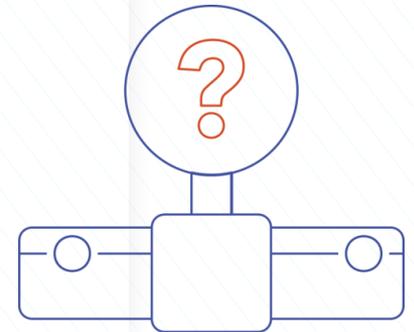
- Sprint 1- update issued 27th September 2018
 - UIG volatility
 - Shoulder month analysis
- Findings:
 - UIG algorithm does not react quickly to significant weather changes
 - Holiday factors do not reflect real usage
 - Weekend vs weekday differences do not correlate to UIG
- Sprint 2 update issued 12th October 2018
 - More detailed analysis of the NDM Algorithm
- Findings:
 - Sensitivity to components of the Composite Weather Variable (CWV) such as temperature and wind-chill coefficient
 - Little or no sensitivity due to wind speeds or cold weather parameters
 - Further evaluation of holiday factors using wider data set has discounted sensitivity due to this factor

Next sprint update will be available by 26/10

Weekly update also still available

Further details available at:

<https://www.xoserve.com/index.php/unidentified-gas-uig/>



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08

Operational Data
Enhancements
Paper

Feedback so far

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Feedback to date

- **Interest in joining working group from a few shippers and stakeholders.**
- **Suggestions in feedback to date include**
 - Restricting API/polling attempts on data once updated data is available (e.g. instantaneous supply).
 - Removing data that hasn't been used over a period of time.
 - Proposal for outage timing to be aligned to Gemini outages e.g. ~03:00-05:00 but general agreement that 18:00 is also acceptable.
 - Agreement that a User Guide in plain English prioritised around most frequently used data items and reports with FAQ's would be very useful.
 - Suggestion that it would be useful to share statistics on most frequently used report/data items.
 - Proposal to share more DN within day data to the market.

Please discuss your thoughts in person/email or via phone with Karen Thompson.

SMART (Storage Monitoring and Reporting Tool)

As of Friday 19th October, National Grid has replaced the **internal storage reporting system**, which incorporates the **Daily Margins Notice (DMN)**, and **Gas Deficit Warning (GDW)**.

Customers will not notice any changes to the National Grid website, or interruption to service. The system is expected to increase reliability and consistency of following publications:

- Daily Storage and LNG Operator Information (supplementary reports)
- Gas Deficit Warning (prevailing view, daily summary report, GDW Data item)
- Margins Notice (Prevailing view, daily summary report, MN trigger data item)

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09

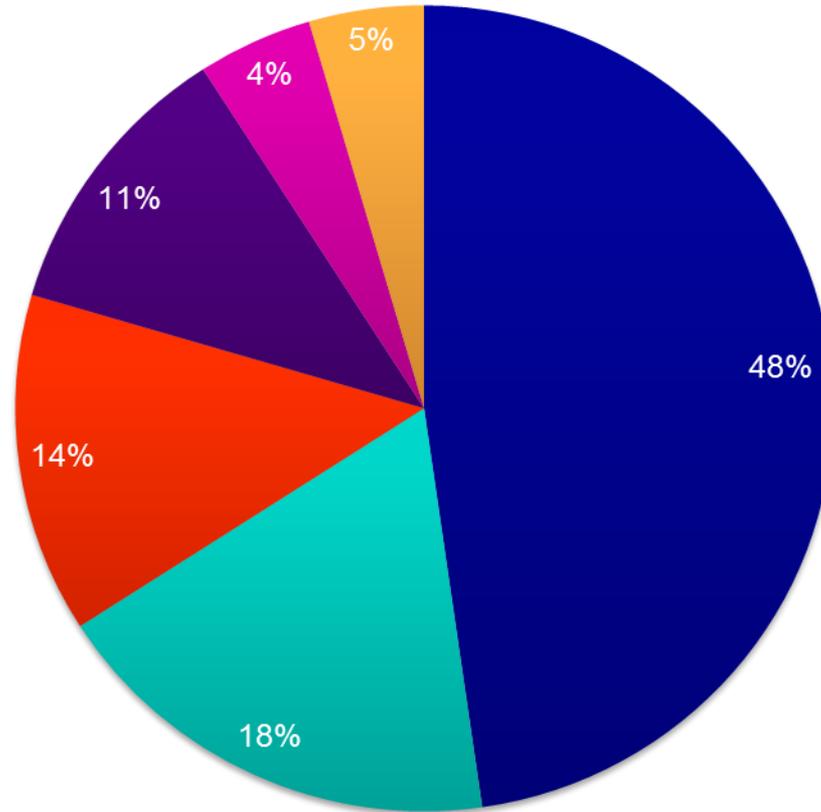
Queries This Month

October 2018

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Queries since last Forum



■ MIPI ■ After the day / reconciliation ■ GEMINI ■ Charging ■ Incentives ■ Network Question

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Operational Forum Dates

2019

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2019 Operational Forum Dates

2019 Dates:

- 17 January
- 14 February
- 14 March
- 18 April
- 20 June (NG House – Warwick)
- 19 September
- 17 October
- 21 November

2019 – Proposal to move to 3rd week in the month based on attendee feedback

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11

Axe the Fax

Project Update

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Axe the Fax

Most of our NTS connected customers & shippers will now have been contacted by Craig Shipley who is the Project Manager for this change:

- **National Grid would like to work with the industry to help move away from Fax machines to electronic notifications by the end of this calendar year.**
- **Small amount of testing time required before implementation**
- **We provide a welcome pack, example files, and a ‘file generator’ example**
- **We will fully support you through the process before going live with the system**
- **Please speak to Karen if you would like to be included or if you have any questions/concerns regarding the above.**

Query Surgery and Next Forum

Final Operational Forum of the year will take place on Thursday 29th November

Please send any requested topics to:

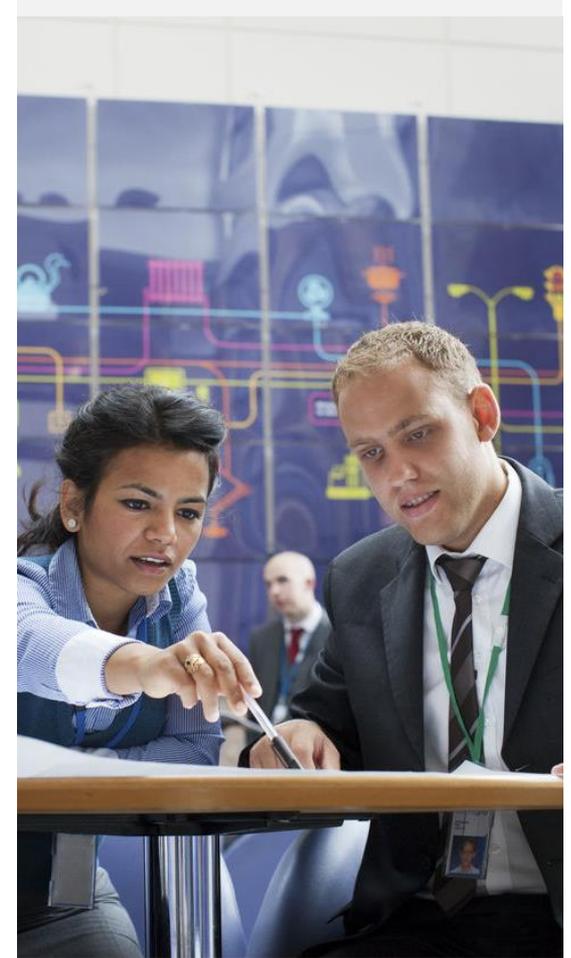
Karen.Thompson@nationalgrid.com

or

.Box.OperationalLiaison@nationalgrid.com

Opportunity now for 121 discussion with NG and Xoserve attendees.

Lunch Available



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