Gas System Operator

Gas Operational Forum

London Radisson Grafton
17th January 2019

nationalgrid

Health & Safety

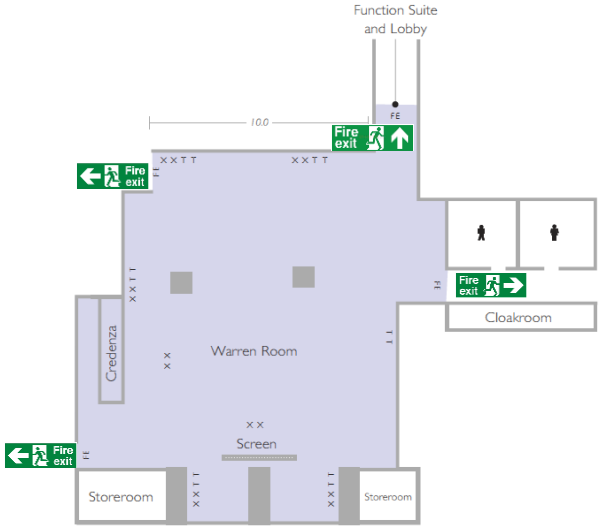
No Fire Alarm testing is planned for today

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

There are 4 fire exits in the Warren Room, as shown be the map below



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

Contents page

Breaks:

Morning Break

10:30 – 10:55

Lunch Break & Query Surgery

12:20 onwards

Operational Data Enhancements Working Group will take place at 1pm

National Grid and Xoserve Attendees

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Gas Operations

- Karen Thompson
- Jon Davies
- Martin Cahill
- Abby Hayles
- Imran Abdulla
- Harj Kandola
- Craig James
- Josh Bates
- Mike Wassell

Customer & Stakeholder Relations

- Helen Field
- Steve Pownall

Previous Actions

Item	Action	Detail
No-deal REMIT contingency	Provide further detail on no-deal contingencies in place for REMIT	Ofgem have Published a note online summarising https://www.ofgem.gov.uk/publications-and-updates/no-deal-eu-exit-remit-contingency-arrangements
Data Item Appendix	Provide Appendix showing where to find data items in prevailing view and ANS	Operational Data User Guide v1 has been published on the website (How to use the data tools) https://www.nationalgridgas.com/sites/gas/files/documents/Operational%20Data%20User%20Guide%20-%20Version%201.pdf
Offtake Rules	Provide more information about Offtake Rules and when they are applied	Abby Hayles will present an agenda item on this at the forum today

Feedback Since Last Forum

Feedback	Description	Actions
Hourly Trading	Is it possible to avoid on the hour trades, as these can sometimes be missed	Currently assessing if this is possible
ICE Indicators	Is there an indicator when National Grid has traded on the platform?	Not currently – trading carried out anonymously
GEMINI Training	Training for GEMINI could be improved	To be covered in Xoserve section today

Gas System Operator

02

Operational Overview

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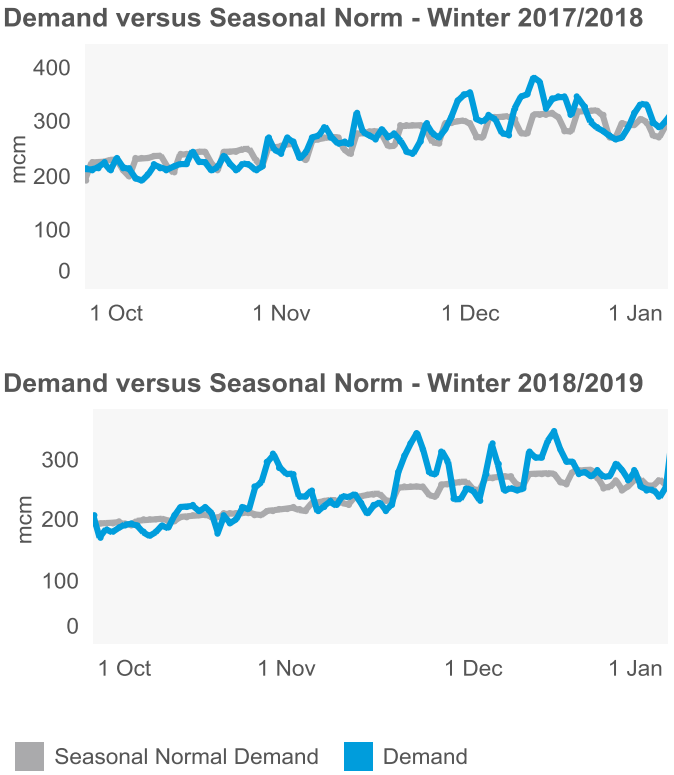
Demand

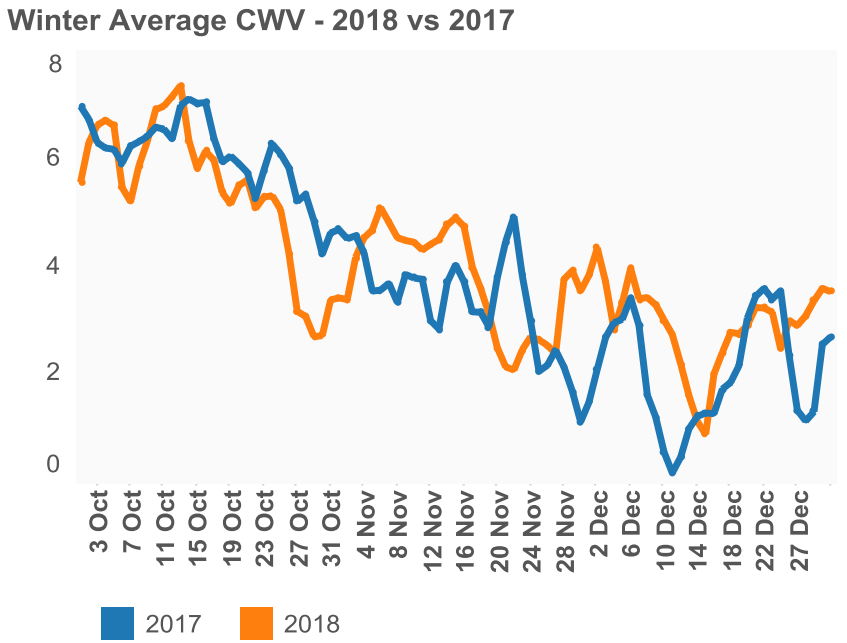
During this Winter there have been occasions when demand has been significantly higher than seasonal normal.

This is inconsistent with last year, which saw demand largely follow seasonal normal demand expectations



CWV

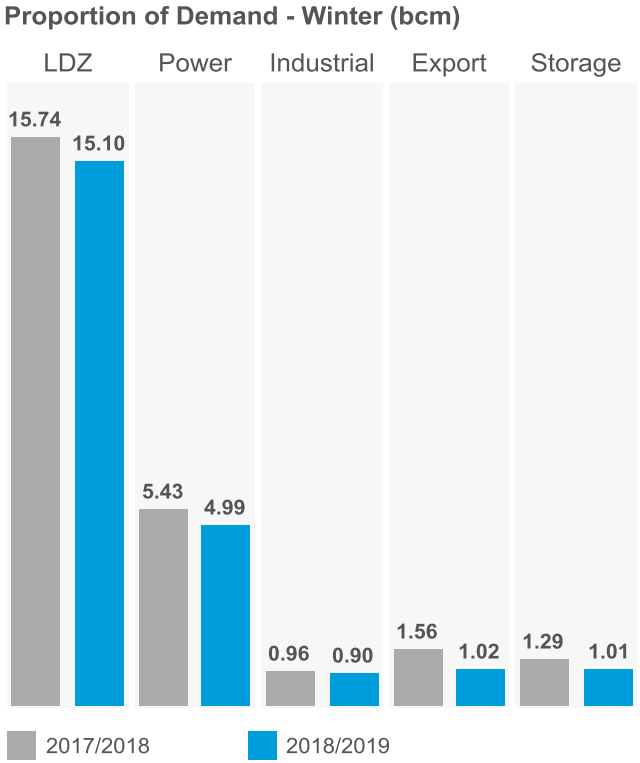
In October 2018 CWV's were consistently lower compared to the same period in 2017. In contrast, since November 4th, with a few exceptions, CWV has, on average, been higher than in the same period last year



Demand – Components

The profile of demand seen so far this Winter is broadly similar to that of the same period last year.

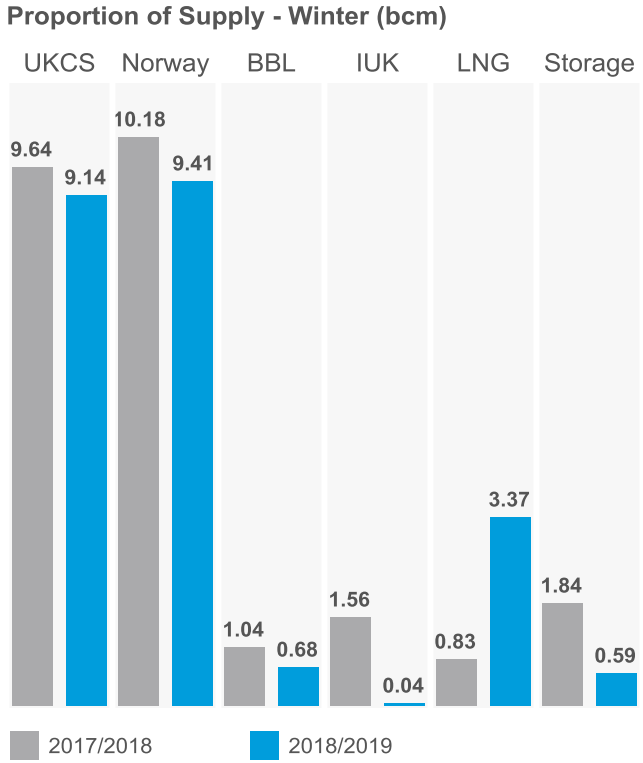
The two significant changes observed so far this Winter are an increase in LDZ demand as a % of total demand and a decrease in the volume of IUK exports.



Supply – Components

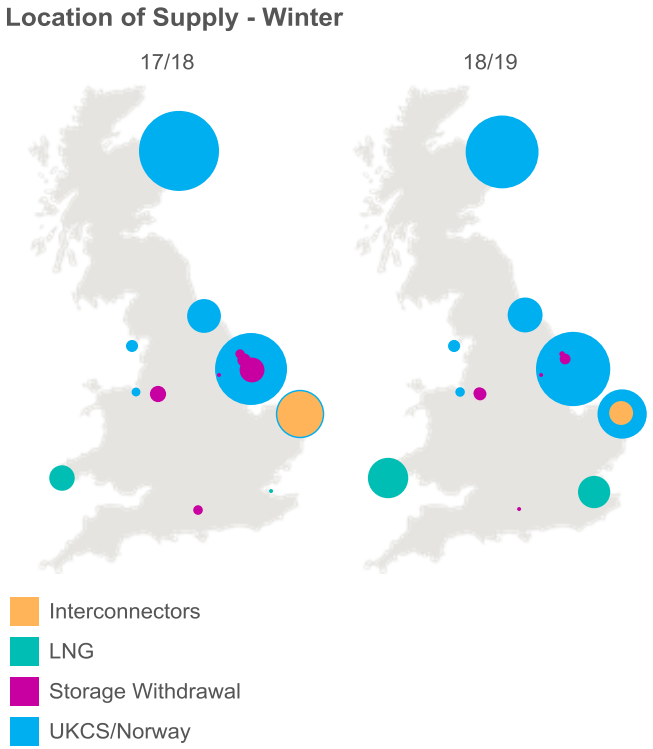
The most noticeable change so far this year is a pronounced increase in supplies from LNG.

Compared to last year, we have seen a reduction in the proportion of gas being supplied from IUK and Storage.



Supply – Location

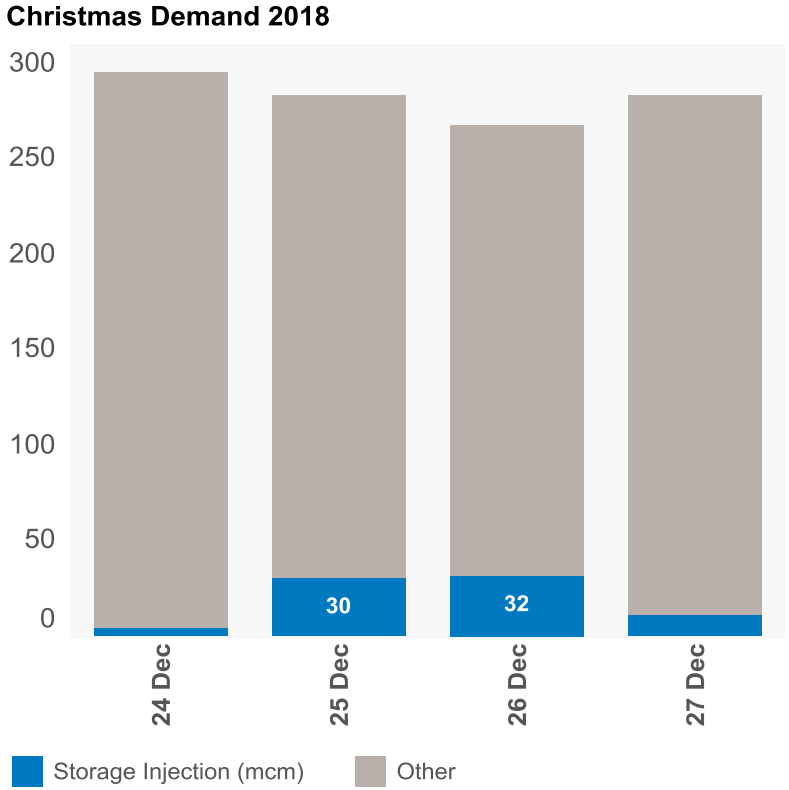
With the increase in supply from LNG, the locational profile of supply has changed somewhat, with a larger proportion of gas in the South East and the West.



Christmas Day Demand

Christmas demand was forecast to reach a low of 240mcm

Price differentials and an increase in storage injection saw actual demand peak at 283mcm



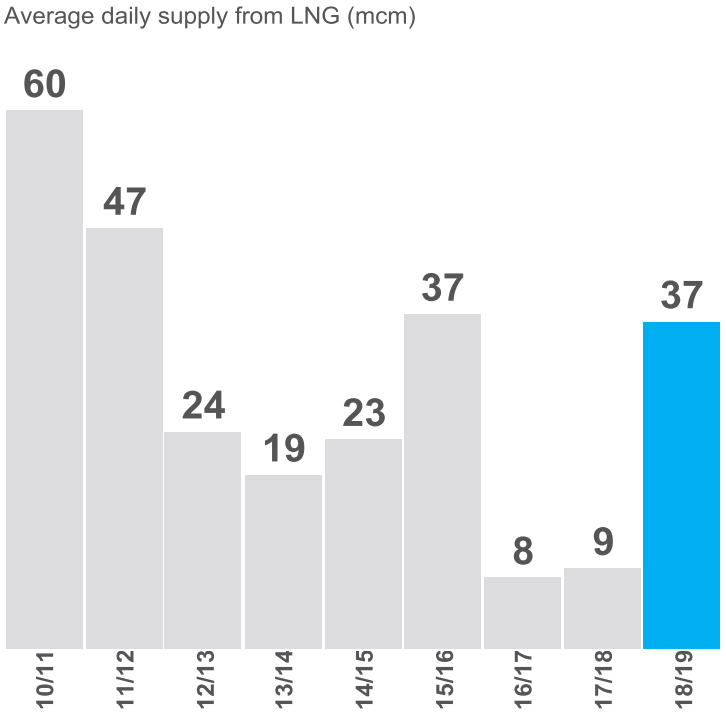
LNG supply compared to historical levels

This Winter we have recorded the

Highest LNG levels for 3 years

Whilst the levels of LNG so far this Winter are a significant increase when compared to the last two Winters, the current levels of LNG are still some way below those seen in 2010/11

Highest ever daily average at Grain



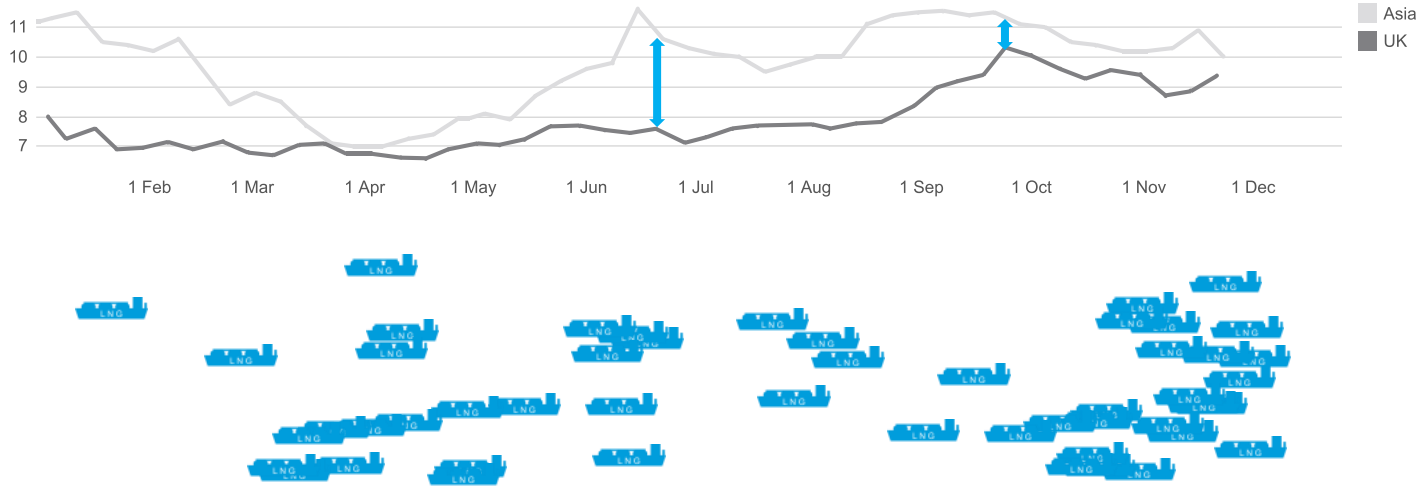
Based on data from 01/10 to 31/12

Changing global prices attracts LNG to UK

The destination of LNG stocks is highly dependent on price.

After a long period during which the LNG prices on offer in Asia were significantly higher than those in the UK, the price differential reduced as we moved into Winter.

Since the decreased price differential, the frequency of LNG tankers arriving in the UK has increased.



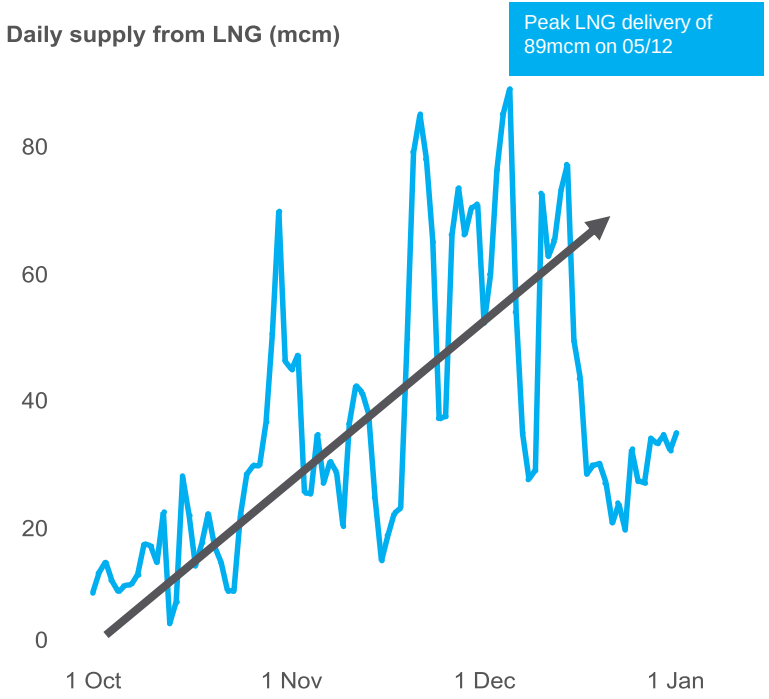
High levels of LNG set to continue?

Through the beginning of Winter

LNG flows kept increasing

LNG supply peaked at 89mcm on 5th December, before a drop-off in mid-December.

However, as of January 2019, 10 more LNG tankers have arrived into the UK and more are expected.

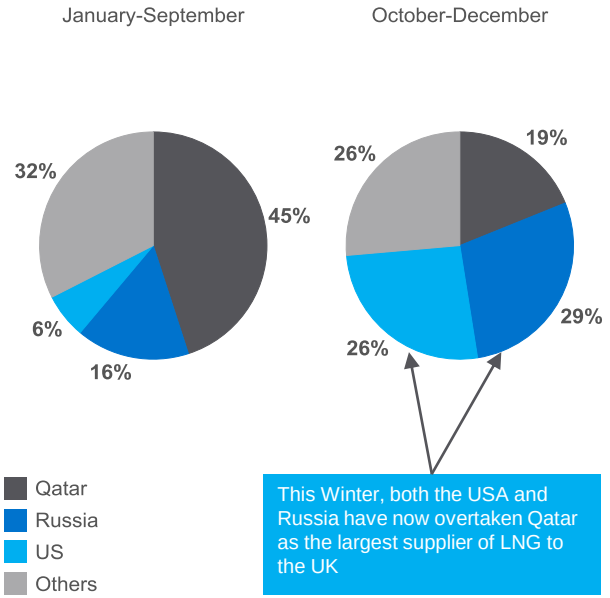


Based on data from 01/10 to 05/12

Where the LNG is coming from

Since the beginning of Winter

Supplies from USA and Russia have increased



Gas System Operator

03

Xoserve Updates

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Xoserve and National Grid – collaborative working to improve Customer experience

Results of recent Customer feedback

Xoserve and National Grid are working together to address Customer feedback that has been received via the NG Customer satisfaction survey. The key areas of feedback were

1. **Improve Data Quality and get the issues resolved quickly**
2. **Difficult to get hold of the right person on the Service Desk**
3. **Need Gemini training / Gemini e-learning isn’t very good**
4. **Invoicing guides should be available to help understanding**
5. **Getting passwords reset is difficult**

Xoserve Customer Experience - Improvements plan

A number of improvements are either underway or have been made to improve the service we deliver to our Customers – but we know we need to do more. Here is what we have done so far and what we want to do next

Customer Feedback	Initiatives we have completed	Further Initiatives	**Next Steps**
1 Improve Data Quality and get the issues resolved quickly	• National Grid and Xoserve have refined the communication between businesses to imrove the timeliness and detail given to customers should an issue arise	• A number of initiatives to enhance Gemini processes are being assessed by National Grid,	• Update on initiatives and the status of each initiative will be shared with Customers .
2 Difficult to get hold of the right person on the Service Desk	A fast track process for Gemini has been implemented. Customers will be asked a few questions capture the minimum detail and pass it straight through to the Gemini technical resolver groups.	• Process to provide Customer feedback has been implemented	• Feedback and action plan will be shared with customers at Industry Forum .
3 Need Gemini training / Gemini e-learning isn't very good	• User guides have been revised and updated – these can be found on our website https://www.xoserve.com/index.php/our-systems/gemini/gemini-training/	• Xoserve seek to understand specific training requirements and work with National Grid to develop training packages	• To be discussed at Operational Forum 17th January

Xoserve Customer Experience - Improvements plan (continued)

A number of improvements are either underway or have been made to improve the service we deliver to our Customers – but we know we need to do more. Here is what we have done so far and what we want to do next

Customer Feedback	Initiatives we have completed	Further Initiatives	**Next Steps**
4 Invoicing guides should be available to help understanding	• An overview of each invoice available on our new website • Training and Customer expert days completed and more being scheduled	• More training and expert days being planned. • Customers invited to contact amelia.gallini@xoserve.com for training requests	• Schedule of events being developed and will be published on Xoserve Website
5 Getting passwords reset is difficult	• A one hour resolution has been introduced.	• Feasibility of introducing an on-line password reset function is being looked into with National Grid .	National Grid and Xoserve will provide an update at the next Operational forum

Xoserve Training team overview – (handout)

As part of Xoserve's ongoing improvements, we have created a dedicated training and knowledge section on Xoserve.com, we are eager to understand our Customers training or educational requirements. We are keen to work with National Grid to jointly deliver some Gemini training to our Customers .

We need your help to understand the specifics of the training you would like us to deliver.

Responding to customer requests; we have already delivered education days and training material for:

- Customer Induction Day
- Invoicing Discovery Days
- Non-Standard Sites Training
- Ad-hoc 1-2-1 Customer Training
- Unidentified Gas (UIG)
- UK Link Release 3
- Customer Expert Day on Annual Quantity (AQ), Reads and UIG

- If you have any training requests or would like to be involved in a review of our training material, please contact Amelia Gallini via email: amelia.gallini@xoserve.com

Gemini – Operational Update - handout

8th January 2019

Line Pack not published for 11:00 hour bar for the Gas day 2nd Jan 2019

Issue and Impact

- Gemini System had not received the Line Pack, PRCMS or DFNTS files from GCS during the 11:00 hour bar
- As a result the Line Pack was not published for 11:00 hour bar

Resolution plan

- GCS were contacted and they confirmed the values were re-published
- This re-triggered the files and they were successfully received into Gemini

Nomination mismatch between BBL and Gemini on 7th Jan 2019

Issue and Impact

- In some instances Input and Output Nominations were being placed on Gemini but only the corresponding Input Nomination were placed on the Balgzand Bacton Line (BBL) TSO system.
- As part of the matching process BBL rejected the output Nominations as they were missing from their system. This caused the whole Interface file to be rejected which impacted all shippers trying to place Nominations with BBL.

Resolution Plan

- BBL agreed to manually amend the Interface file and send it across manually so that shippers Nominations could get confirmed for 7th January Gas day.
- Customer support provided to help customer change their internal processing .

WDDSEC auction for the 8th hour bar failed on 10th Jan 2019

Issue and Impact

- The Control Room were not able to process the WDDSEC auction for the 8th hour bar and also reported a database error while cancelling the auction.
- Consequently the Shipper bids were not allocated in the Gemini System

Resolution Plan

- The Control Room were advised to carryout the work around steps to re-process the WDDSEC auction.
- The Control Room followed the work around steps and completed the auction process in the same hour bar. The Control Room later confirmed that all the Shipper bids were allocated in the Gemini System

Gemini Customer support

Xoserve and National Grid have been working together to produce some process guides to assist shippers.

These guides contain advice on how to resolve the 3 scenarios that cause a ‘Nomination Lock’ and a guide on EU Nominations.
The link to the guides is :
https://www.xoserve.com/index.php/our-systems/gemini/gemini-training/

UIG Task Force Progress Report - handout

8th January 2019

Background

- Modification 0658: ‘CDSP to identify and develop improvements to LDZ settlement processes’ approved by Ofgem on 6th July 2018
  - Modification raised to authorise the CDSP to assign resources and incur costs related to a task force to investigate the causes and influencers of Unidentified Gas (UIG), with a target of reducing the volatility and scale of UIG and developing a robust predictive model for daily UIG for use by all parties.
- BER for Change Reference Number XRN4695: ‘Investigating causes and contributors to levels and volatility of Unidentified Gas’ approved at ChMC on 11th July 2018
  - This Change Proposal added an additional service line into the DSC to enable Xoserve access to investigate, using resources and technology, causes and contributors to levels and volatility of Unidentified Gas. Xoserve is to provide monthly update reports and recommend proposals and subsequent changes or modifications for the industry.
- The following slides provide:
  - Task force dashboard
  - POAP
  - Task force next steps

UIG Task Force: Dashboard

RAG	
Time	G
Cost	G
Benefit	N/A

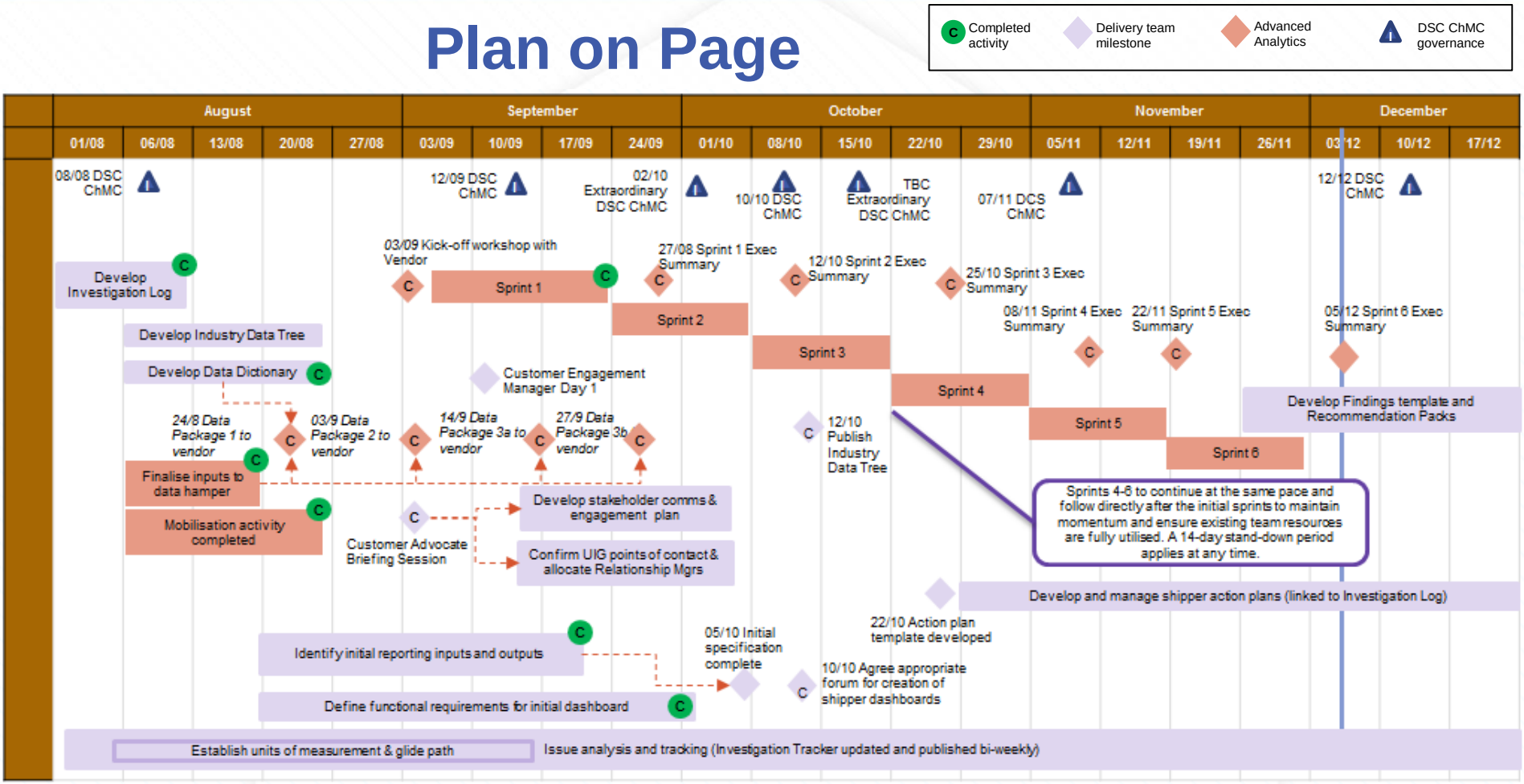
Overall RAG status:*

G

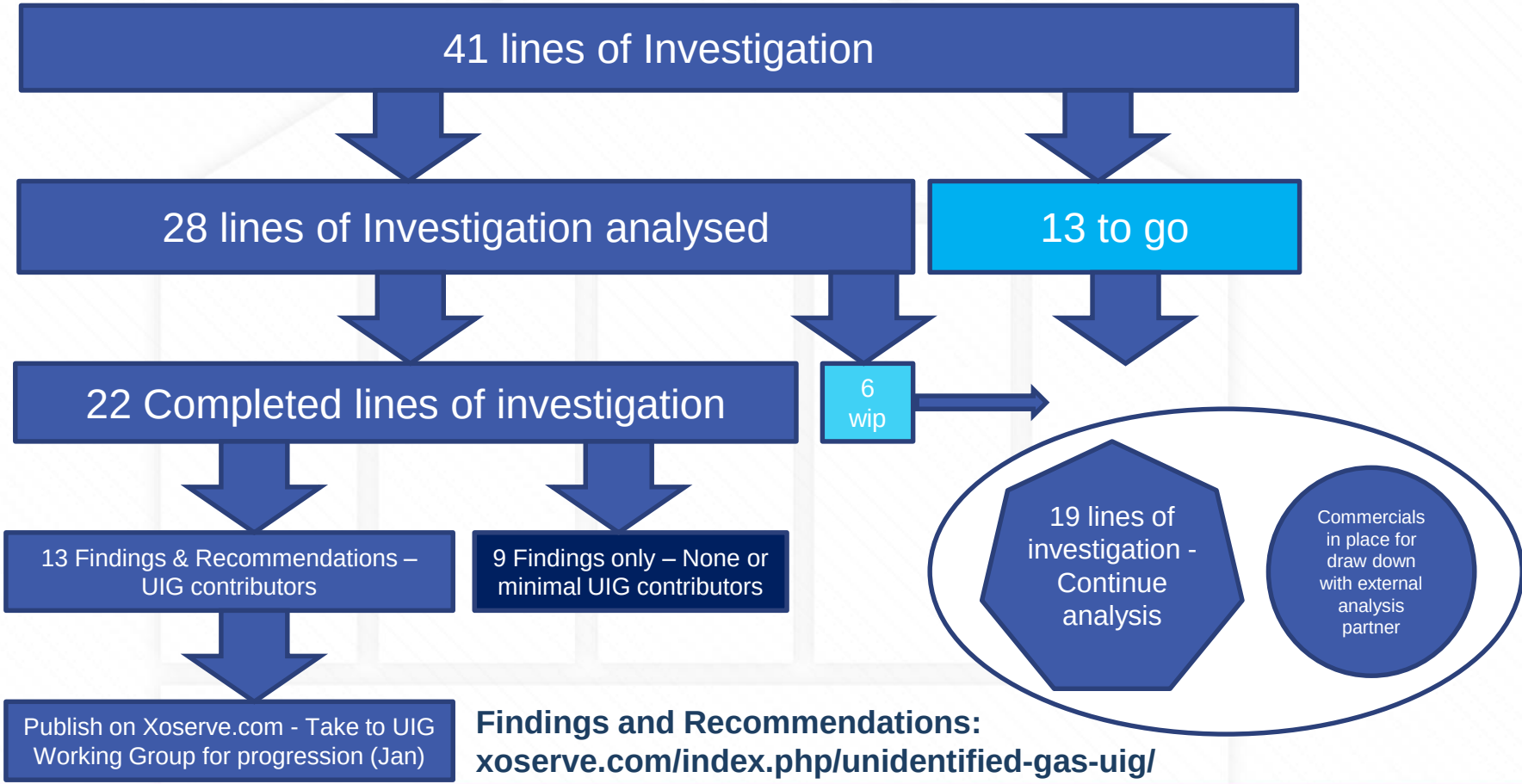
Progress since last month - key milestones	Workstream	Date	Status
Complete Sprint 2	AA + IA	08/10	C
Sprint 3 Kick off Workshop / Deliverable prioritisation	AA + IA	08/10	C
Agree appropriate forum for creation of shipper dashboards	Customer	10/10	C
Publish Data Tree	AA + IA	12/10	C
Publication of Sprint 2 Executive Summary	AA + IA	12/10	C
Publication of Sprint 3 Executive Summary	AA + IA	25/10	C
Attend UIG working group - dashboard	IA & AA	31/10	C
Publication of Sprint 4 Executive Summary	IA & AA	08/10	C
Publication of Sprint 5 Executive Summary	IA & AA	22/10	C

Priorities for next month – key milestones	Workstream	Date	Status
Publication of Sprint 6 Executive Summary	IA & AA	06/12	C
Publication of Findings - ongoing	IA & AA	11/01	G
Present documented Recommendations at ChMC December	IA & AA	12/12	C
Attend UIG working group	IA & AA	07/12	C
Run UIG Recommendation day under UIG work group banner	IA & AA	28/01	G
AUGE & PAFA Recommendation Playback	IA & AA	09/01	G

Plan on Page


Completed activity
Delivery team milestone
Advanced Analytics
DSC ChMC governance
August
September
October
November
December
01/08
06/08
13/08
20/08
27/08
03/09
10/09
17/09
24/09
01/10
08/10
15/10
22/10
29/10
05/11
12/11
19/11
26/11
03/12
10/12
17/12
08/08 DSC ChMC
12/09 DSC ChMC
02/10 Extraordinary DSC ChMC
10/10 DSC ChMC
TBC Extraordinary DSC ChMC
07/11 DCS ChMC
12/12 DSC ChMC
Develop Investigation Log
03/09 Kick-off workshop with Vendor
Sprint 1
27/08 Sprint 1 Exec Summary
Sprint 2
12/10 Sprint 2 Exec Summary
Sprint 3
25/10 Sprint 3 Exec Summary
Sprint 4
08/11 Sprint 4 Exec Summary
Sprint 5
22/11 Sprint 5 Exec Summary
Sprint 6
05/12 Sprint 6 Exec Summary
Develop Industry Data Tree
Develop Data Dictionary
Customer Engagement Manager Day 1
24/8 Data Package 1 to vendor
03/9 Data Package 2 to vendor
14/9 Data Package 3a to vendor
27/9 Data Package 3b vendor
12/10 Publish Industry Data Tree
Develop Findings template and Recommendation Packs
Finalise inputs to data hamper
Mobilisation activity completed
Customer Advocate Briefing Session
Develop stakeholder comms & engagement plan
Confirm UIG points of contact & allocate Relationship Mgrs
Sprints 4-6 to continue at the same pace and follow directly after the initial sprints to maintain momentum and ensure existing team resources are fully utilised. A 14-day stand-down period applies at any time.
Develop and manage shipper action plans (linked to Investigation Log)
22/10 Action plan template developed
Identify initial reporting inputs and outputs
05/10 Initial specification complete
10/10 Agree appropriate forum for creation of shipper dashboards
Define functional requirements for initial dashboard
Establish units of measurement & glide path
Issue analysis and tracking (Investigation Tracker updated and published bi-weekly)

Task Force Update – Where we are



Findings and Recommendations:
xoserve.com/index.php/unidentified-gas-uig/

Gas System Operator

04

Survey Feedback

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Survey Feedback

Throughout the year we carry out ‘special follows’ on our data to continue identifying areas where we can improve our service

We have identified some topics which have been fed back multiple times, and would like to understand your priorities

Focus Areas for Today

GEMINI	Training for GEMINI / service desk issues
Contacts	Ease of getting hold of the right person
Query Management	Response time for queries
Technical Knowledge	Lack of Technical knowledge / detail in discussions
Business Model	Not understanding your business model
Allocation	Issues with allocation / metering

What to think about

Discuss any areas which cause you issues or you feel could be improved

We would like to understand which of these areas is the biggest problem area for your business

Do you feel this area has improved or got worse since you started your role?

Are there any suggestions for things you would like to see in this area

We will provide feedback at the end of today, and communicate actions in due course

Summary of Breakout Session

Most common theme was allocation

- **D+5: suggestion to have more of a rolling process**
- **Ability to gain information – e.g. APIs for noms and allocation data through GEMINI**
- **Queries associated with APIs taking too long to resolve**
- **Point of contact unclear for allocation issues (role difference between National Grid and Xoserve)**

Please contact us if you would like to discuss more or have any outstanding issues

We will be assessing all the feedback from today in more detail

Gas System Operator

05

Gas Storage Operator Group

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UK Storage Market

Challenges & Opportunities faced by Storage Operators

Presentation to the Gas Ops Forum

17/01/2018

UK flexible gas supply

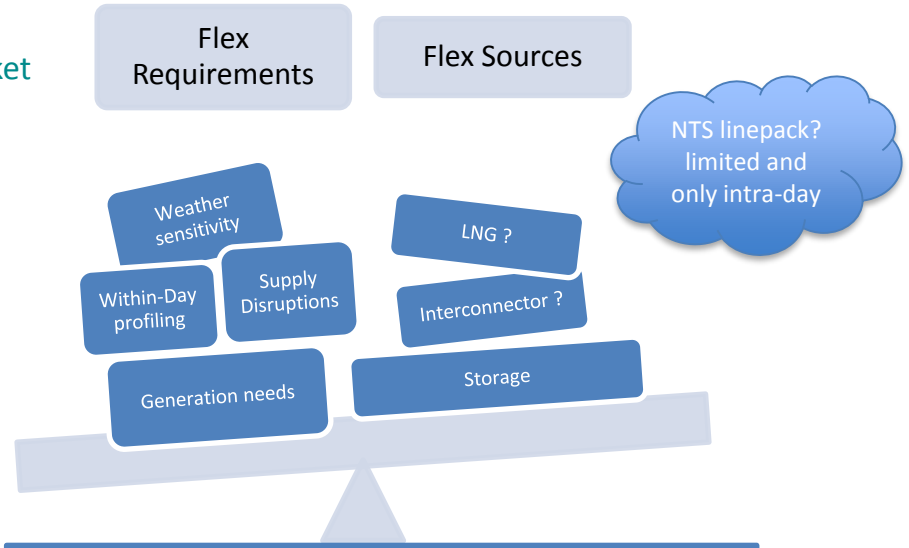
A European market with distinct characteristics

Overview of the current UK storage market and challenges for operators

UK flexible gas supply

Gas storage provides a multitude of benefits to the UK energy market, in particular it:

- is located close to, and often embedded in, the UK gas market and so can react quickly to demand or supply shocks
- provides delivery support for other sources of supply
- reduces the average cost of consumers' bills
- reduces the investment needs of the national transmission system and importantly for the physical security of supply
- is available to be called upon by National Grid in a Gas Emergency
- can deliver physical gas to the network within an hour of instruction

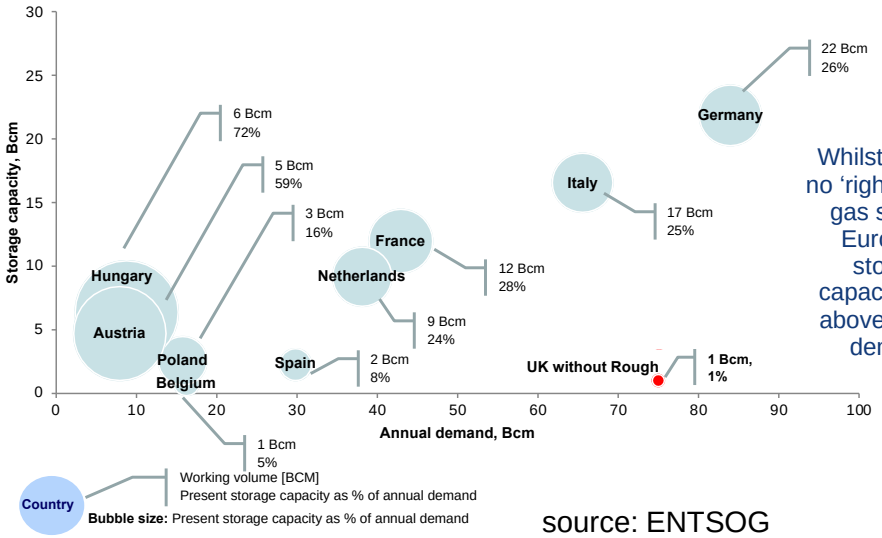


Reduced flexibility from Norway and UK production, increasing gas fired generation and renewable energy sources add to the flexibility needs

The visible differences between UK and the European gas markets

- UK Storage capacity is very limited compared to the continent
  - Just above 1% of annual demand versus 20-25% on the continent
  - Assets closures and mothballing are higher than any other European country
  - Even including LNG regas storage capacity (approx. 1.2 bcm), the picture remains the same
- The UK storage ratio has recently diverged further from the European average
  - Previously the UK situation was justified by the large share of captive gas supply from the UKCS
  - But decisions to close Rough (2017) and to mothball Hole House (2018) have further misaligned us with the rest of Europe

Europe storage capacities vs. gas demand

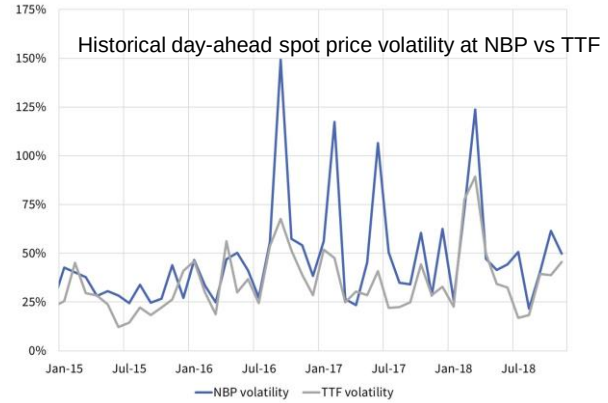


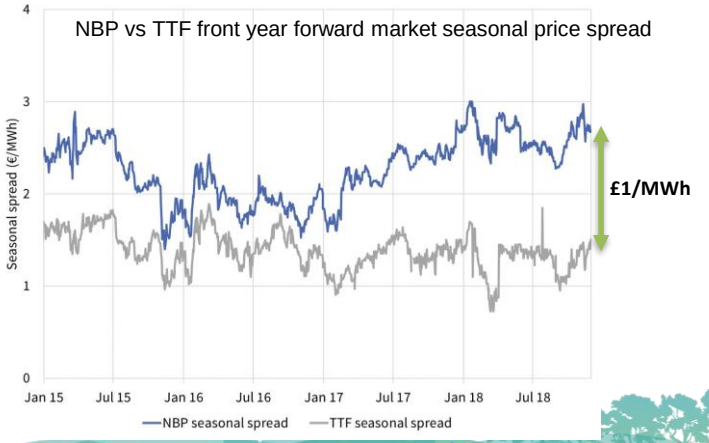
Whilst there is no 'right' level of gas storage European storage capacities are above 20% of demand

source: ENTSOG

The visible differences between UK and the European gas markets

- The market signals for flexibility seem stronger in GB than on the continent
  - Seasonal spreads are almost double levels on the continent but they remain close to UK historical levels
  - Short term price volatility is higher. Occasional spikes are usually more extreme, increasing outage risk on these days.
- Since a wave of Final Investment Decisions in the early 2000s' that has brought online the most flexible and efficient storage assets in the UK, investment has ground to a halt
- Current market conditions are a consequence of the GB failure to maintain and develop its portfolio of storage assets
  - What are the reasons for such a contrasted picture between the UK and the continent? Is this trend likely to continue?
  - What are the challenges for existing storage operators or developers in GB?





source: Timera Energy

Business Environment for storage: UK vs other European markets

The commonly assumed challenges for storage…

- Seasonal Spreads
  - Higher price differences that on the continent, these only represent a small proportion of revenues and far from justify investment in storage
- Hub Liquidity
  - NBP is the second most liquid hub in Europe, however it is challenging to hedge quarters in large volumes for the next storage year(s)
- Market uncertainties
  - Long term government strategy for energy and gas?

…the actual key challenges

- Market Framework
  - Missing Money of within-day flexibility due to lack of utilisation of flexible assets / storages
- Business Rates
  - Tax level based on storage space representing half of all storage costs.
- Network access
  - Uncertainty on Network access costs

UK gas intraday flexibility trends

Inadequate pricing resulting in scarcity

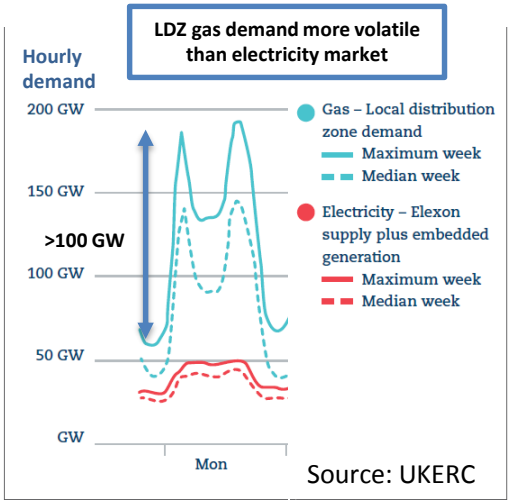
Intraday flexibility: Requirements from end-users

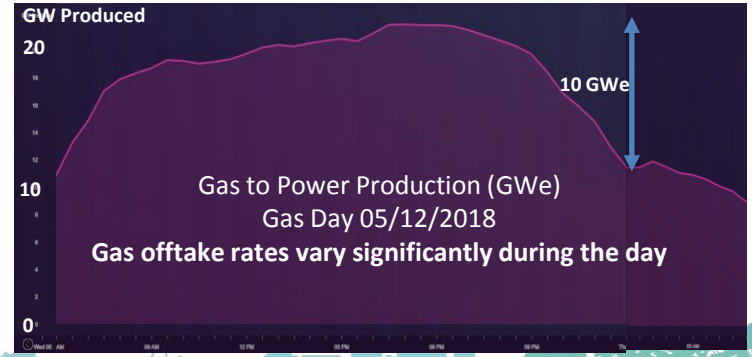
- Both the LDZ demand and Gas to Power require substantial amounts of intraday flexibility
  - Over 100 GW of gas from trough to peak to supply LDZ demand
  - Over 10 GWe of CCGT production, equivalent to 20 GW of gas over more than half of the day
- Assuming an "ideal" supply picture:
  - constant rate delivery into the grid, and
  - balanced End-of-Day network position

this end user flexibility causes several tens of mcm of linepack depletion over the course of the day, then replenished at night.

… however the supply is far from "ideal"

Economic signals incentivise the use and exhaustion of linepack resources

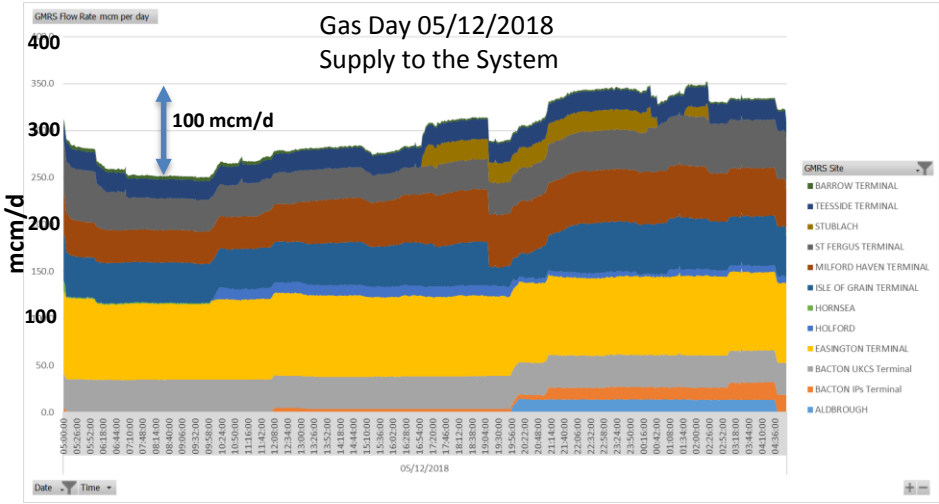




Source: ElectricInsights.co.uk

Intraday flexibility:
Incentives (or the lack of it) on NBP market participants

- Flexibility for both DNs and transmission connected sites is currently priced at zero
- The market is responding in a rational way to this price signal
  - Gasholders on LDZ have been dismantled, end-users flexibility needs are passed through without damping
  - Gas to Power consumption profile is responding to hourly electricity prices
  - IUK and BBL interconnectors are connected to markets with hourly constraints and intraday value
  - Assets using electricity to supply gas tend to avoid Triad and Capacity Market Charge by reducing their load at peak times, therefore impacting flows to the network



Source: National Grid GMRS Data

No signal is given for supply flows to support linepack

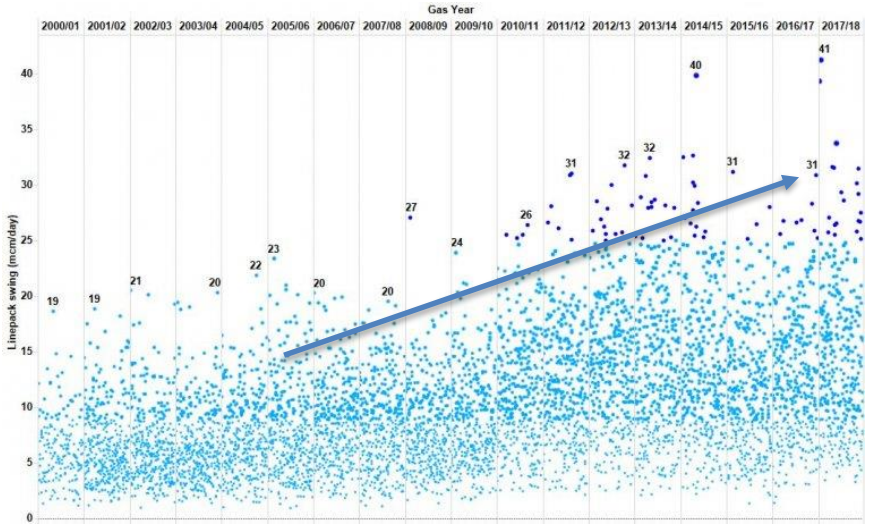
Within-day flexibility: Value of WD flexibility

The current zero-pricing of within-day flexibility results in an unconstrained demand and sub-optimal costs

- Growing intraday linepack swings cause costs for the SO and potential problem if the trend is continued
- Commercial operators that could provide intraday flexibility are not offered an appropriate market to compete

In the future, the commercial value of within-day flexibility should be reviewed to solve both the issues of linepack swings for the SO and of "missing money" for commercial operators

- Within-Day flexibility can be provided by a number of commercial operators (Storage, LNG, Interconnectors, many of them currently struggling to make a profit).
- Market based solutions should be favoured to address the within-day flexibility requirements at the lowest possible cost
- SO costs to manage the linepack and TO Investment in the grid to increase linepack swing capabilities should be avoided



Daily linepack swing - Source: National Grid

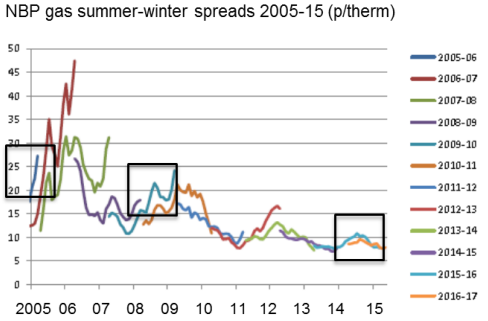
The current use linepack is on an unsustainable trend

Business Rates

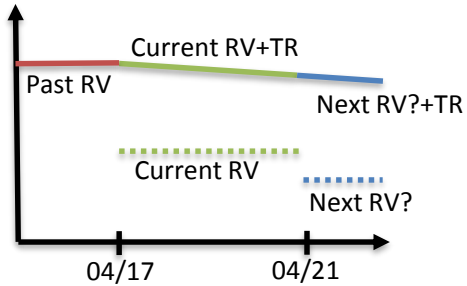
Unsustainable costs for storage operators

Business Rates – High asset valuation compounded by the transitional relief mechanism

- At their current level no operator can run a storage business profitably in GB
  - Rateable value for storage assets is based on a method that does not reflect current market conditions.
  - Business rates represent a proportion of costs and revenues of storage operators' P&L that is not in line with other sectors (it is as high as all other operating costs)
  - Because of the transitional relief mechanism, it may take more than a decade to benefit fully from the new rateable values.
- The tax regime is strongly distorting the competition
  - LNG storage in tanks in UK attracts a much lower level of Business Rates
  - Continental EU storages pay property tax at levels well below those in the UK (tens of thousands of Euros vs millions of Pounds)



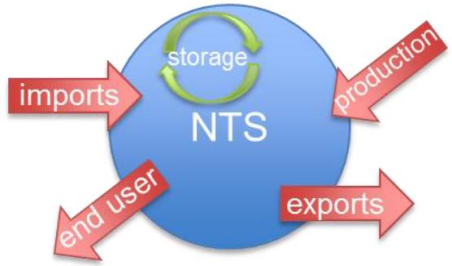
Source: OFGEM report Wholesale markets 2015



Network Access

Network access must consider storage contribution to the gas system

Storage assets rely on access to the network and provide flexibility to the network by enabling reliable parking of gas to quickly meet market needs

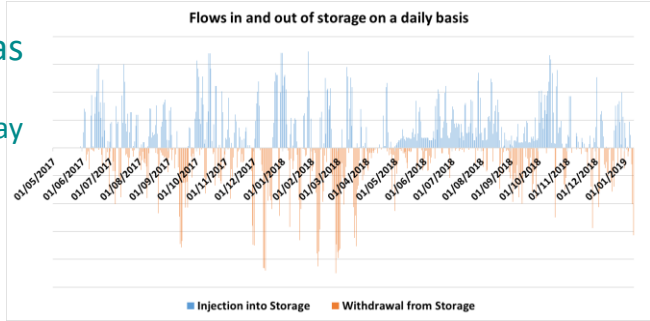


Charging at Storage Connexion Points in GB vs European countries

- GB arrangements so far among the more favourable to storages in Europe
- They reflect the embedded nature of the storage or "*Parking en route*"
- The Gas Charging Review is threatening to make network costs to and from GB storage worse than all main storage hubs on the continent

The profile of NTS capacity required by storage is highly dependant on gas demand levels, however:

- Long term entry capacity increases are requested via PARCA/QSEC bookings, which may result in design of network capabilities (therefore costs) in excess of actual needs
- Exit off-peak capacity pricing and acquisition is better suited to the nature of storage flows supporting the network, but they are at risk of becoming priced at close to firm capacity levels through the GCR, limiting opportunities to refill and increasing costs.
- Current arrangements to secure NTS capacity can deter storage capacity increase



Conclusion

Conclusion

- Stakeholders widely recognise the need for flexibility in the UK
  - The market is placing a higher value on seasonal spreads and experience more volatility than on the continent
  - The system operator is reporting on the increasing challenges for balancing the grid and managing linepack levels.
- Existing storage operators in the UK are running the most modern and efficient plants in Europe. Yet storage operations are made uneconomic in the UK
  - Missing money: the value of intraday flexibility is not being recognised by the balancing arrangements
  - Business rates are putting storage at a significant disadvantage compared to other flexibility providers in the UK and in Europe
- The situation is expected to worsen with a rushed implementation of the Gas Charging Review, with potentially disruptive tariffs applicable in the imminent storage year 19/20 (starting May 2019), yet to be decided.
- These issues affect all energy users including consumers (lower resilience to shocks and higher bills), not only the storage operators.
- The market already prices in almost £1/MWh premium for the delivery of winter gas to the UK compared to the continent. This represents a burden of £500m on the consumer for the 500 TWh consumed in the winter, plus the suppliers' cost of managing the higher volatility risk.

Storengy UK
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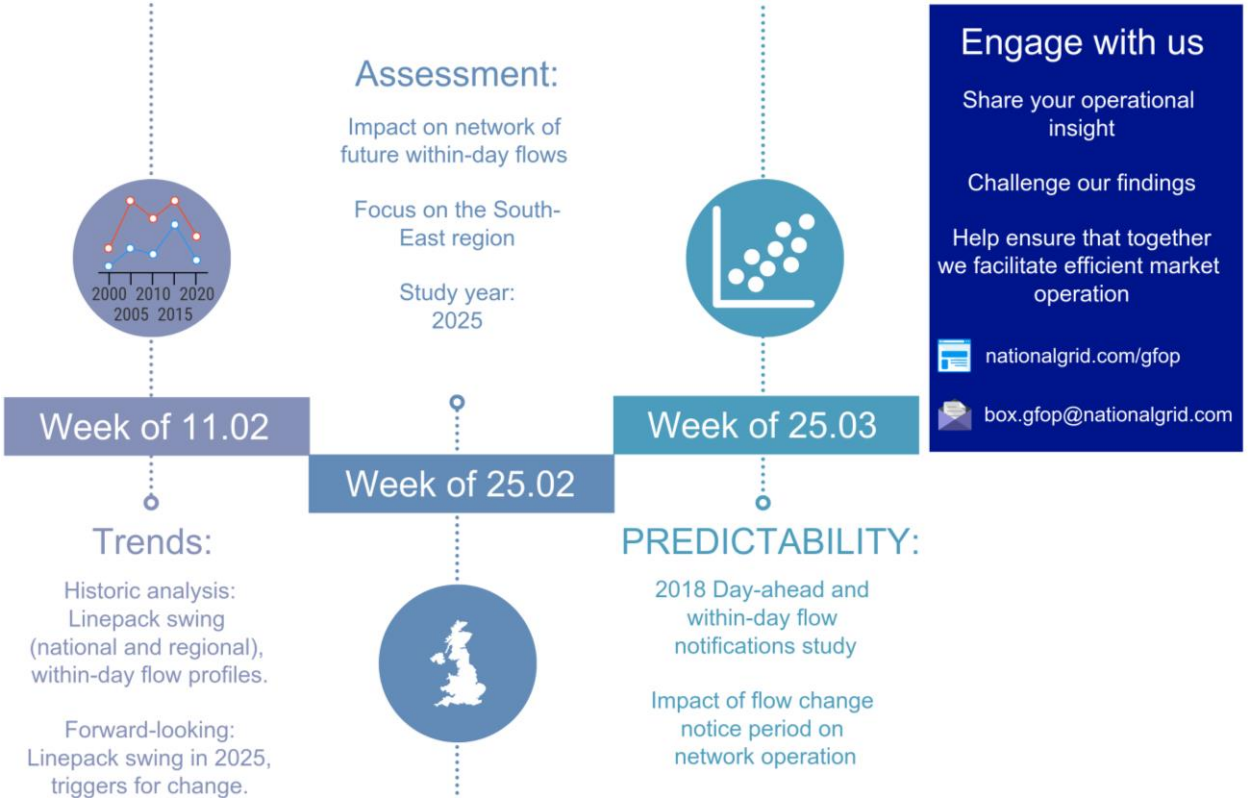
Gas Future Operability Planning (GFOP)

Within-day study: How future flow behaviour could change, and its impact on the gas network. Findings will be released on nationalgrid.com/gfop



Gas System Operator

06

Offtake Rules

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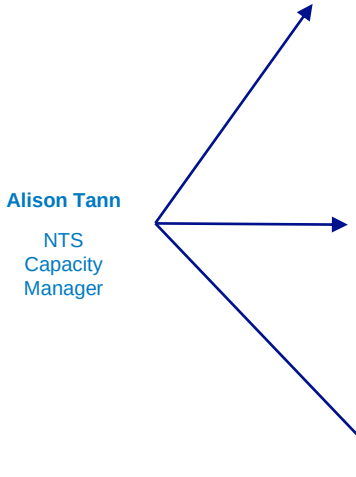
Agenda

- **The Capacity Team**
- **Overview of the “Rules”**
- **When and how we apply the “Rules”**
- **Consequences of not Complying**
- **Contact Information**

The Capacity Team

Please contact us at:
capacityauctions@nationalgrid.com



Strategy and Development (Constraint Management and Commercial Strategy)

Abby Hayles
Principle Capacity Strategy & Development Analyst

Navraj Dhesi
Senior Capacity Strategy & Development Analyst

Strategy and Development (Systems)

Richard Jones
Principle Capacity Strategy & Development Analyst

Kay Haycock
Capacity Strategy & Development Analyst

Capacity Auctions

Brad Charles
Senior Capacity Auction Analyst

Sarah Wheeler
Capacity Auction Analyst

Matthew Newman
Capacity Auction Analyst

Samuel Dunn
Capacity Auction Analyst

Exit “Rules” Overview

Is this “Rule” on?	“Rule”	Predominant UNC Reference Please note; Offtake Arrangement Document (OAD) references apply to DN Offtakes only., However, each non-DN offtake has similar rules as part of TPD and/or individual Network Exit Agreements
✓	Maximum NTS Exit Point Offtake Rate (MNEPOR)	J 3.10 - User offtake obligations: NTS Exit Points and Inter-System Offtakes
✗	Maximum Permitted Rate (MPR)	J 3.10 - User offtake obligations: NTS Exit Points and Inter-System Offtakes
✗	Maximum percentage rate change	OADI 2.3 - Revisions to Offtake Profile Notices
✗	Change lead-time % of Supply Point Offtake Rate (SPOR)	Network Exit Provisions (and J 4.5.4 - Offtake Profile Notice)
✗	Change lead time % of Maximum Flat Offtake Rate (MFOR)	OADI 2.3 - Revisions to Offtake Profile Notices
✗	Lead Time LDZ Aggregated Rate Change	OADI 2.3 - Revisions to Offtake Profile Notices
✗	Daily NTS Exit (Flexibility) Capacity	J 7.3 - Short-term increase in NTS Exit (Flexibility) Capacity
✗	NTS Exit (Flat) Capacity Overrun	J 3.10 - User offtake obligations: NTS Exit Points and Inter-System Offtakes

Rule: Maximum NTS Exit Point Offtake Rate (MNEPOR)

An MNEPOR is an amount (where positive) determined as the instantaneous rate of offtake (in kWh/hour) which the Transporter determines to be the maximum instantaneous rate at which it is feasible to make gas available for offtake at the NTS Exit Point i.e. the metering range.

Category: Offtake Rates

UNC Reference: TPD J 3.10 - User offtake obligations: NTS Exit Points and Inter-System Offtakes

What does this mean?

3.10.5 – National Grid is not obliged to make gas available for offtake:

a) That exceeds the maximum permitted rate;

b) That exceeds the User's Fully Adjusted Available NTS Exit (Flat) Capacity;

c) Between 06:00 hours and 22:00 hours and a quantity that exceeds calculation shown in UNC TPD B 3.13;

d) at any time, at a rate which exceeds the Maximum NTS Exit Point Offtake Rate.

3.10.6 – for an LDZ/LDZ Offtake:

a) Rate exceeding the maximum permitted rate;

b) A quantity which exceeds the maximum permitted quantity [in accordance with the Network Exit Provisions].

Rule: Maximum Permitted Rate (MPR)

Definition and Calculation: UNC TPD J 3.10

Category: Offtake Rates

UNC Reference: TPD J 3.10 - User offtake obligations: NTS Exit Points and Inter-System Offtakes

What does this mean?

3.10.5 – National Grid is not obliged to make gas available for offtake:

a) That exceeds the maximum permitted rate;

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c) Between 06:00 hours and 22:00 hours and a quantity that exceeds calculation shown in UNC TPD B 3.13;

d) At any time, at a rate which exceeds the Maximum NTS Exit Point Offtake Rate.

3.10.6 – for an LDZ/LDZ Offtake:

a) Rate exceeding the maximum permitted rate;

b) A quantity which exceeds the maximum permitted quantity [in accordance with the Network Exit Provisions].

Links in with TPD J3.10.2 which is the calculation for Maximum Permitted Rate.

In simplistic terms, this rule means that we would be asking Users to flow at a flat rate rather than profiling flows.

Rule: Maximum percentage rate change

Category: Offtake Rates

UNC Reference: OAD I 2.3 - Revisions to Offtake Profile Notices

What does this mean?

2.3.3(b) – Where a revised Offtake Profile Notice(s) is submitted by a DNO, if there is, at any time, a change in the aggregate rate of offtake, the aggregate flow rate change shall not exceed 5%.

Rule: Change lead-time % of Supply Point Offtake Rate (SPOR)

Category: OPN Notice Periods

UNC Reference: Network Exit Provisions (and TPD J 4.5.4 - Offtake Profile Notice)

What does this mean?

4.5.4 – The Network Exit Provisions will prescribe a period of notice to be given (by way of modified Offtake Profile Notice) to the Transporter of any change in the rate of offtake of gas.

These are detailed within the individual Network Exit Agreement(s). Extract from the template NExA located on the National Grid, Gas website:

4.5. For the purposes of Section J4.5.4, the period of notice to be given to National Grid of any change in the rate of offtake (by a revised Offtake Profile Notice) shall be as follows:

(i) for an increase, or (subject to paragraph 4.6) a relevant cumulative increase, which exceeds 50% of the SPOR as per [Table 2], not less than 4 hours;

(ii) for an increase, or (subject to paragraph 4.6) a relevant cumulative increase, which exceeds 25% but does not exceed 50% of the SPOR as per [Table 2], not less than 2 hours;

(iii) for an increase, which does not exceed 25% of the SPOR as per [Table 2], not less than 1 hour;

(iv) for a decrease, not less than 1 hour.

Rule: Change lead-time % of Maximum Flat Offtake Rate (MFOR)

Category: OPN Notice Periods

UNC Reference: OAD I 2.3 - Revisions to Offtake Profile Notices

What does this mean?

2.3.1(a)

(i) - If the flow rate change is 50% or more of the Maximum Flat Offtake Rate, the lead time given must be at least 4 hours.

(ii) - If the flow rate change is less than 50% but more than 25% of the Maximum Flat Offtake Rate, the lead time given must be at least 2 hours.

(iii) - If the flow rate change is less than 25% of the Maximum Flat Offtake Rate, the lead time given must be at least 1 hour.

(iv) - If the flow rate change is to decrease, the lead time given must be at least 1 hour.

Rule: Lead Time LDZ Aggregated Rate Change

Category: OPN Notice Periods

UNC Reference: OAD I 2.3 - Revisions to Offtake Profile Notices

What does this mean?

2.3.3(a) - Where a revised Offtake Profile Notice(s) is submitted by a DNO, if there is, at any time, a change in the aggregate rate of offtake, the lead time for this information is at least 2 hours.

Rule: Daily NTS Exit (Flexibility) Capacity

Category: Capacity

UNC Reference: TPD J 7.3 - Short-term increase in NTS Exit (Flexibility) Capacity

What does this mean?

A request for an increase in the amount of NTS Exit (Flexibility) Capacity may be made by submitting an Offtake Profile Notice.

Links in with OAD I 2.7.2; if a DNO submits an Offtake Profile Notice(s) for flex, and National Grid NTS determines that it is feasible, the Offtake Profile Notice(s) will be accepted.

Where National Grid does not forecast a need to take Operational Balancing Actions as a result of request for additional short term system flexibility, then the request for such flexibility will be allowed. On this basis, National Grid will accept OPNs outside the contractually agreed parameters.

If in the reasonable opinion of National Grid, its acceptance of an OPN which requests additional short term system flexibility will give rise to an Operational Balancing Requirement, then the OPN requesting such flexibility will be rejected.

Rule: NTS Exit (Flat) Capacity Overrun

Category: Capacity

UNC Reference: TPD B 3.13 - NTS Exit Capacity: overruns and overrun charges &

TPD J 3.10 - User offtake obligations: NTS Exit Points and Inter-System Offtakes

What does this mean?

The quantity of gas offtaken by a User at the NTS Exit Point on the Day exceeds their NTS Exit (Flat) Capacity for that day. AND, the total quantity offtaken by all Users at the NTS Exit Point on the Day exceeds the total capacity for all Users.

If a User submits an End of Day position which states that they will overrun aggregate capacity entitlements at that Exit Point, National Grid has the option to accept or reject.

Links in with UNC TPD J 7.4, as detailed on the following slide.

When we could apply the "Rules"

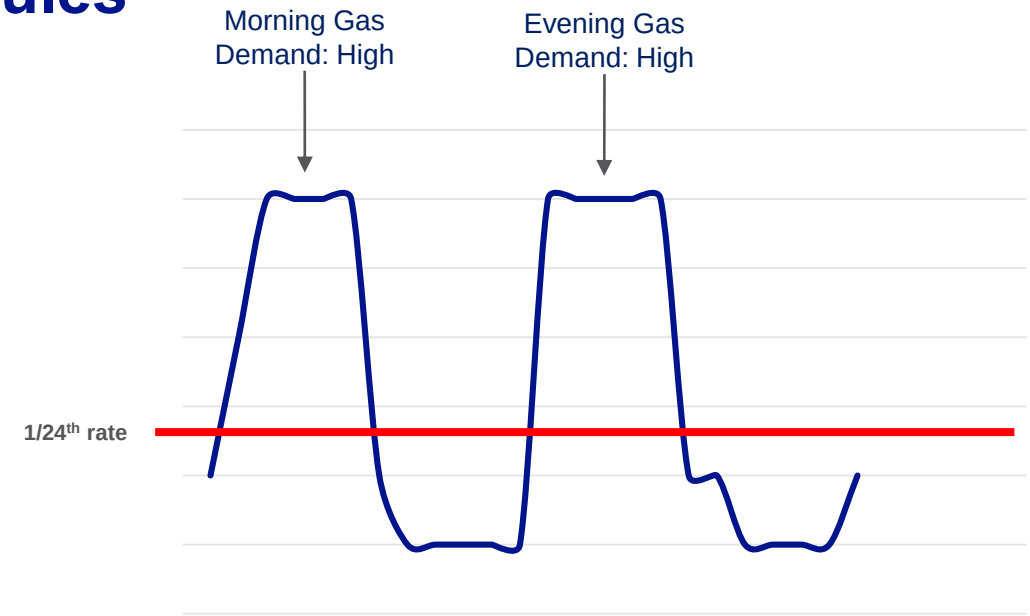


Figure 2: Example flow pattern for an offtake

If the "rules" are applied, flows should be 1/24th of capacity entitlement

How we let you know the “rules” are on

Active Notification System (ANS)

Throughout the year it is important that all Shippers ensure that their ANS information up to date.

We want to ensure that all Shippers are able to receive ANS messages so please could you check that the contact information registered against your Shipper entity is accurate by following the below link:

https://www.s2.emergencycallsecure.com/newlogin/

In order to access t[illegible] need your Company ID, User ID and [illegible]

It is [illegible]tails are corr[illegible]s up to date.

Example ANS message

LIST APPLICABLE NTS EXIT ZONE(S) and LDZ(s) AS THE TITLE OF THE MESSAGE Please be aware that based on information submitted to National Grid NTS, there is an increased likelihood that OPN requests for additional short term flexibility may not be accommodated. NTS Exit Zones details can be found on https://www.nationalgridgas.com/data-and-operations/constraint-management

Consequence of not Complying

If some/all "rules" are on and User(s) flow in a way that is not compliant with UNC/OA Exit Provisions, there coul escalates, leading to:

- **Safety concerns**
- **Emergency actions**
- **Security of supply risk**
- **Cost for industry and co**
- **Asset integrity**

UNC TPD J 7.4 states:

If:

Due to a User(s) having a Chargeable Exit (Flat)

Overrun or an NTS Exit (Flexibility) Overrun at an NTS Exit Point, National Grid are unable to make gas available at any other NTS Exit Point; and

National Grid have done what they can to limit the effects of the Exit Overrun;

Then the relevant User(s) at that Overrunning Exit Point shall be liable to National Grid for **all amounts (if any) incurred** by National Grid as a result of any Exit Constraint Managements actions that were taken at any other Exit Point as a consequence.

Questions

If you have any questions regarding this presentation or any capacity-related questions then please do not hesitate to contact the Capacity Team at:

capacityauctions@nationalgrid.com

Gas System Operator

07

Interesting Days

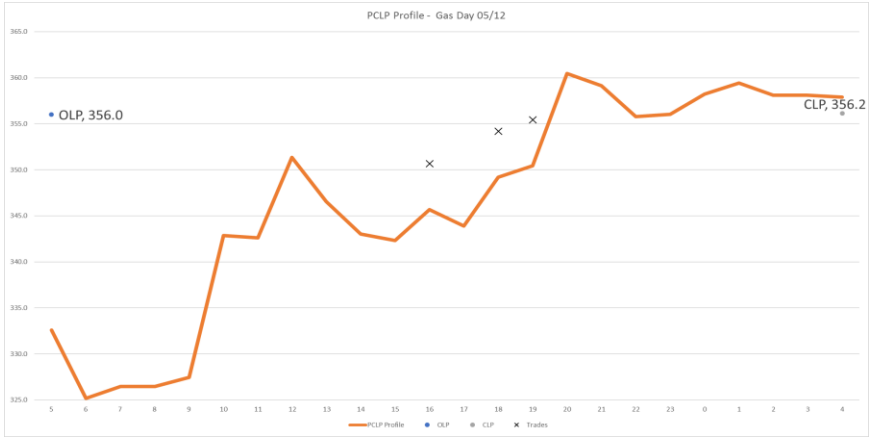
nationalgrid

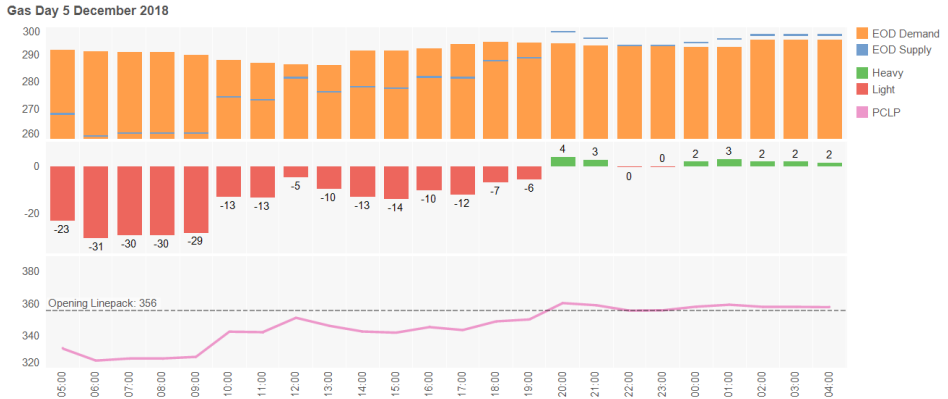
5th December

Supply loss at St Fergus and multiple demand increases caused a large imbalance on the network.

High flows from Milford Haven, Isle of Grain and Bacton required gas to be moved South to North to avoid terminal constraints.

Commercially, significant volume traded, 5.8 mcm, but limited market response observed.



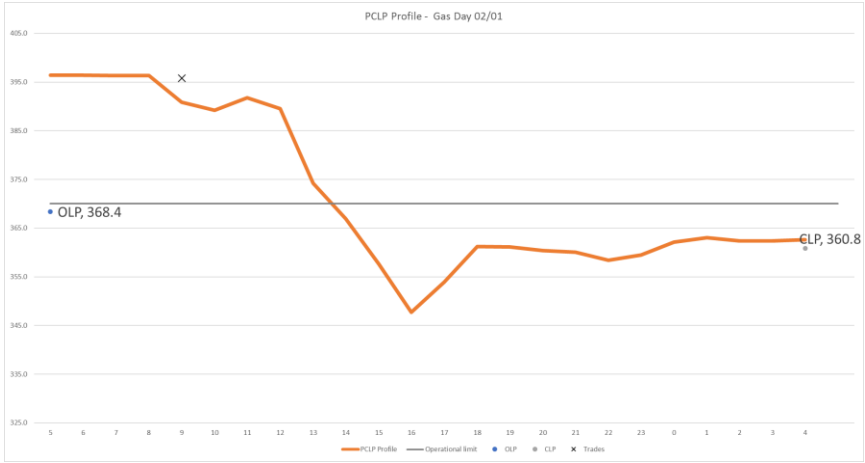


2nd January

Ongoing trend of over-delivery and gained 11.01m over 2 days. Opened at 368.41mcm, close to operational efficiency limit (370mcm).

National Grid traded early and set SMPs at 48p/th. Similar to previous days, yet much larger market response observed.

Rate of PCLP reduction meant potential requirement to buy gas on the same day as sell.



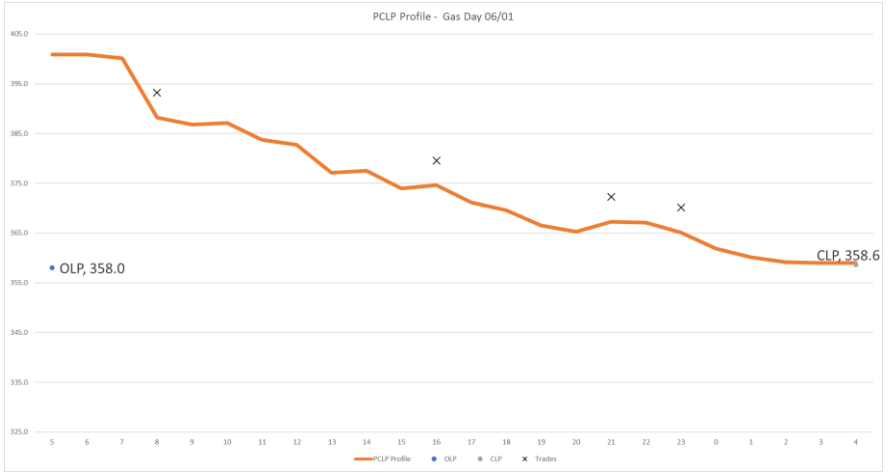
Highlights challenges due to difference in behaviour on standard working days to holiday / weekend.

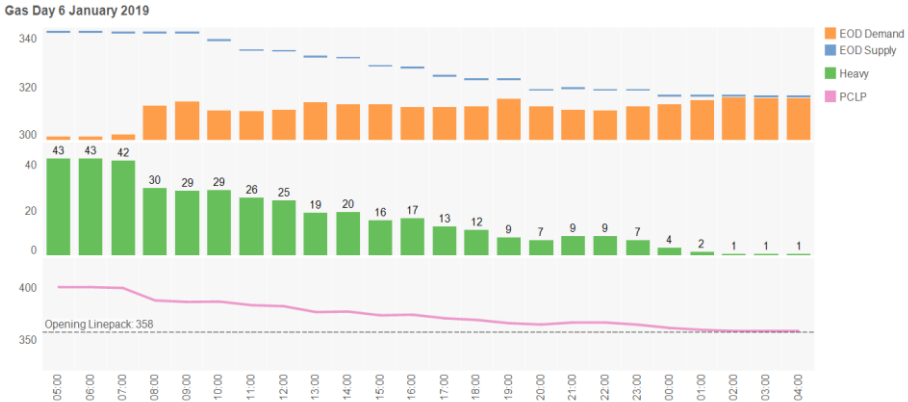
6th January

Ongoing trend of over-delivery. Sold Gas on all 6 Days prior to 6th January. (Sold total of 18.9mcm over those days)

PCLP opened at 395mcm and recent trend prompted early trade.

Multiple sell actions completed throughout day and yet still gained 0.57mcm.





Transparency of drivers

Consideration	Observed by	Data location
Cumulative stock gain / loss	Comparing Consecutive OLP	MIPI>Data Item explorer>Linepack>Opening linepack
Forward Demand profile	Efficiently preparing the system for the days ahead	MIPI>Data Item explorer>Demand>NTS forecast
Supply losses	Instaneous supply	Prevailing view
Calculated Linepack utilisation (in day)	Lowest level Linepack is predicted to reach due to non linear delivery profiles	https://www.nationalgridgas.com/data-and-operations/transmission-operational-data Under supplementary reports section
Max and Min Operating parameters (in day instantaneous levels)	Statement following 1st March 2018	Static – No link Min = 320 max =370
Seasonal Requirement	Requirement to manage seasonal risk and transition efficiently between them.	Static – No link Winter higher stock levels Summer lower stock levels

Gas System Operator

08

Shaping the Bacton Strategy

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What is RIIO?

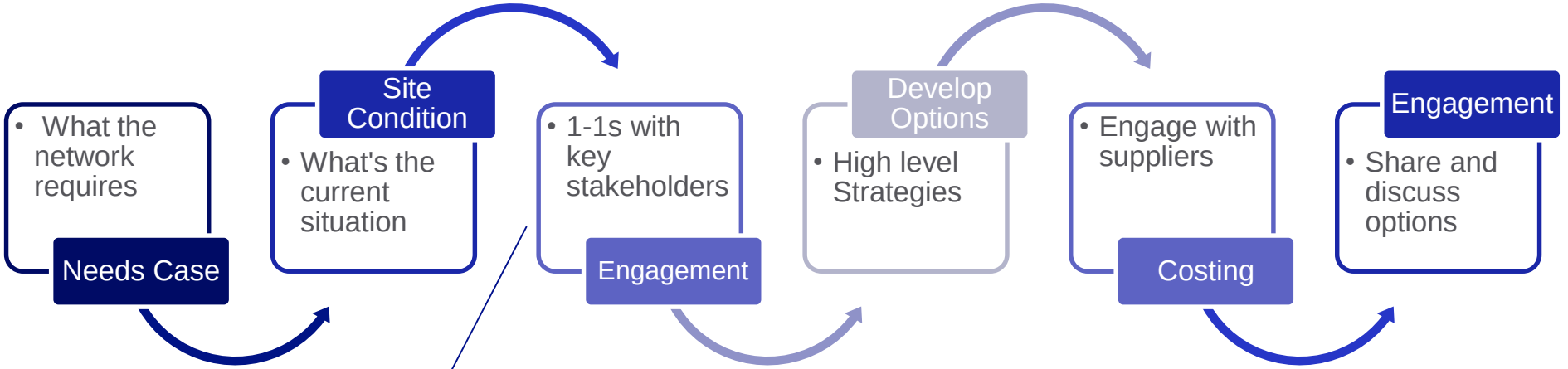
Problem Statement:

The National Grid Terminal at Bacton has age-related asset health and obsolescence issues

We need to understand our customers needs from the terminal now and in the future to:

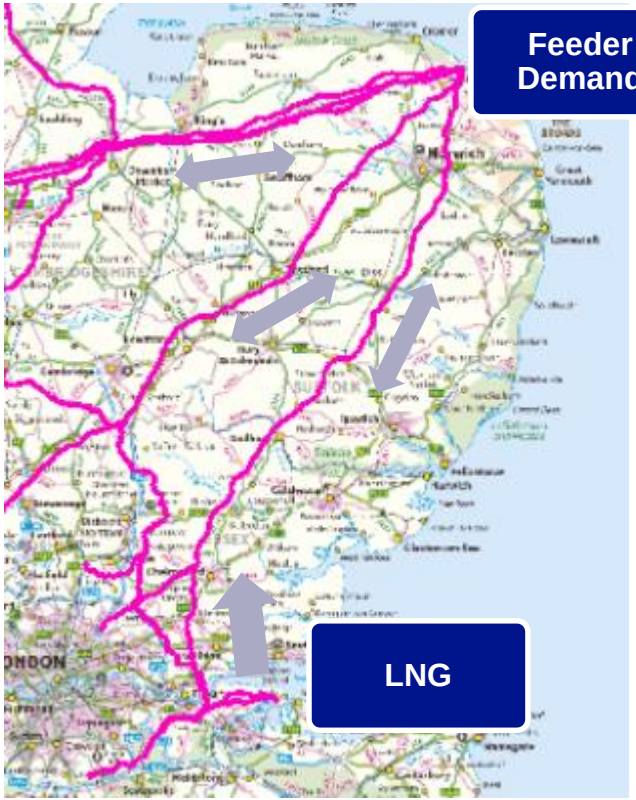
- Support the delivery of our customers business strategies
- Make the right investment decisions
- Deliver the right outcome for the local community and environment
- Deliver efficient and affordable gas supplies for consumers
- Support security of supply

The story so far…



- **Shell**
- **BBL**
- **IUK**
- **New Anglia Local Authority**
- **North Norfolk County Council**
- **Oil & Gas Authority**
- **Independent Oil and Gas**
- **Cadent Gas**
- **RWE**

Bacton – Needs Case…Why do we Need Bacton Terminal?



Manage changing flow patterns and directional swings

Value of gas flowing through Bacton Terminal:

£4billion

Bacton

Strategy for all assets within NG Bacton Terminal Site excl IUK

Estimated cost: £200-400m

Would you like to be involved?

- 1-1 to discuss your needs of the site
- Kept up to date on progress

Further information, please get in touch:

.box.operationalliaison@nationalgrid.com

Gas System Operator

09

Other Information / AOB

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Calculated Linepack Utilisation

- **Issues recently with updating for some users**
- **Refreshing the report should fix this**

Gas Day	Opening Linepack
09/01/2019	356.09

Run Time		
05:00	**12:00**	**18:00**
Calculated Linepack minimum (MCM)		
339.1	339.1	
22:00	22:00	

UNC Modification Updates

0675S – Enabling changes to the BBL Interconnection Agreement to facilitate physical reverse flow

0669R – Review of Gas Deficit Warning and Margins Notice Arrangements

0662 - Revenue Recovery at Combined ASEPs

0667 – Inclusion and Amendment of Entry Incremental Capacity Release NPV test in UNC

0671 – Relief from User Commitment obligations when NTS exit capacity substitution is permitted

0621 – Gas Charging Review

Transmission Working Group and Modification further details available at Joint Office:

https://www.gasgovernance.co.uk/tx

Future Markets Newsletter

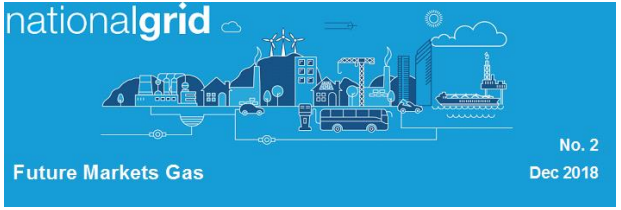
New newsletter focussing on future gas market changes, circulated around 4x per year

Circulated via Join office distribution list so far

December looked at Future of Gas, EU Policy, RIIO T2, Gas Charging Review, security of supply regulations, and capacity methodology

You can subscribe here:

https://us18.campaign-archive.com/?u=f8abb3ae74efc2234c1b9c27d&id=1c9098444f



Welcome!

Thank you for you reactions to our first newsletter that we published in July. Since then there have been several changes on the Future of Gas, EU Policy, our next price control (aka RIIO2), and the Gas Transmission Charging Review. New for this issue we will also be covering the Revised Security of Supply Regulations as well as ongoing Capacity Methodology Review Discussions.

As ever, we would be delighted for you to get in touch about any aspect of our work. We hope you have a Merry Christmas and a Happy New Year.

Chris Logue,
Gas Market Change Delivery Manager.

Following The Restructure

Market Change Gas and Market Change Electricity have now come together to form a Future Markets team led by Cathy McClay. This restructure will allow the

GSMR Review

IGEM will issue an industry wide consultation within the next 4 weeks

Formal Consultation to start in spring 2019

Minimum 12 months before any Parliamentary process begins

This is likely to look at Wobbe Index limits, relative density, Incomplete combustion factor and other properties

Query Surgery and Next Forum

The Next Operational Forum will take place on Thursday 14th February

Please send any requested topics to:

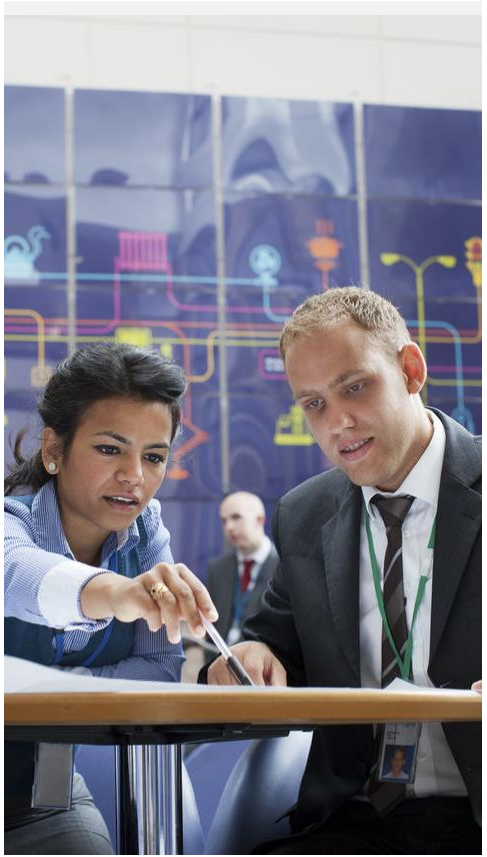
Karen.Thompson@nationalgrid.com

or

.Box.OperationalLiaison@nationalgrid.com

Opportunity now for 121 discussion with NG and Xoserve attendees, with data enhancements group following

Lunch Available



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