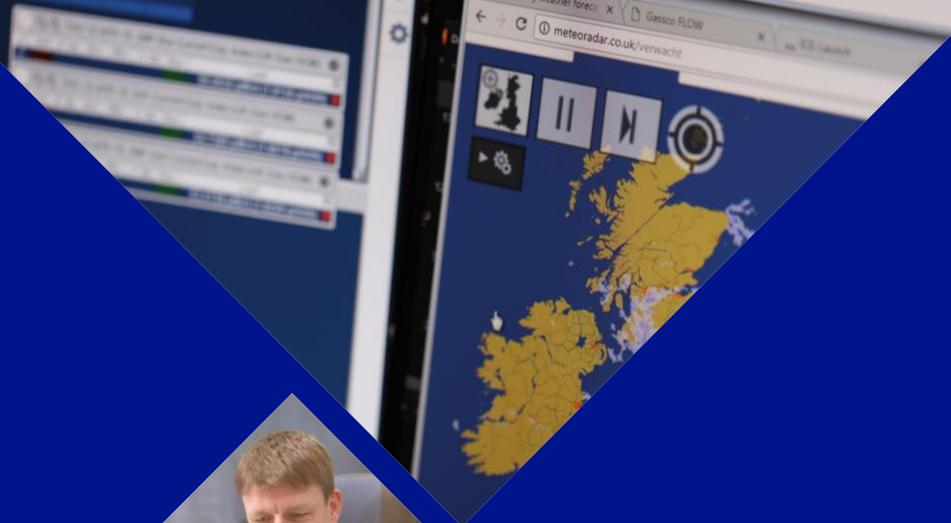


Gas System
Operator

Gas Operational Forum

London Radisson Grafton
14th March 2019

nationalgrid



Health & Safety

No Fire Alarm testing is planned for today

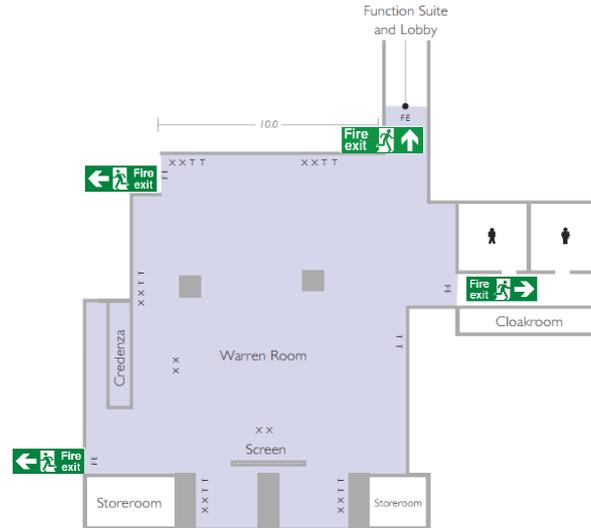
In case of an alarm, -please follow the fire escape signs to the evacuation point

This is at the rear of the Hotel by Fitzroy Square



Warren Room Fire Exits

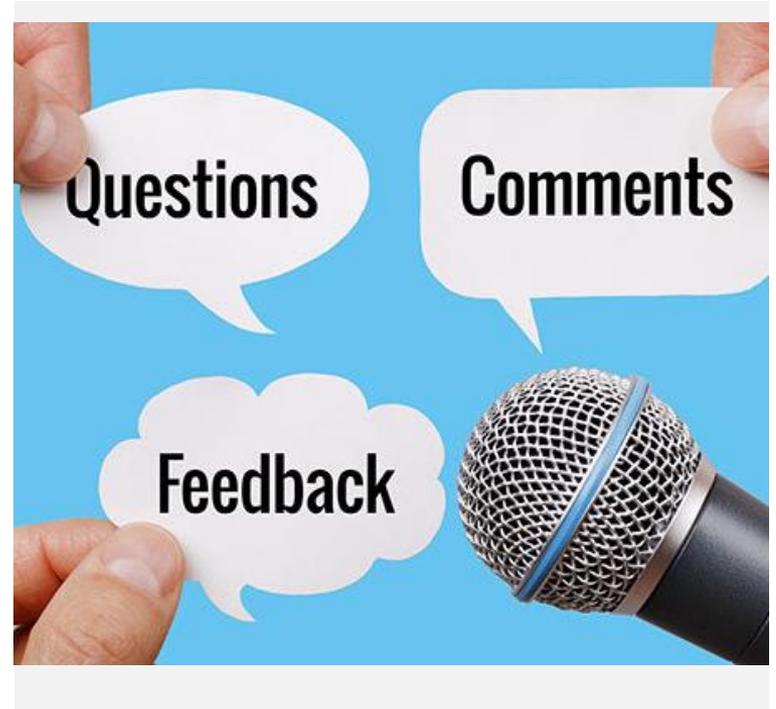
There are 4 fire exits in the Warren Room, as shown by the map below



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

01	Previous Operational Forum Actions and Feedback since Last Forum	09:30
02	Operational Overview	09:40
03	LNG Future Outlook (OIES)	09:55
04	GFOP: Predicting future within-day customer needs	10:50
05	Energy Balancing processes	11:05
06	Operational Data Enhancements update	11:30
	Signposting of information	
07	UNC Modifications GEMINI Enhancements Top Queries Capacity FAQs Maintenance Plan RIIO T2 Xoserve Website	11:40

Breaks:

Morning Break

10:25 – 10:50

Lunch Break & Query Surgery

12:00 onwards

National Grid and Xoserve Attendees

nationalgrid

Gas Operations

- Karen Thompson
- David Lavender
- Jon Davies
- John Carr
- Martin Cahill
- Mark Rixon
- Craig James

xoserve

Customer & Stakeholder Relations

- Matthew Smith

Previous Actions

Item	Action	Detail
GEMINI APIs	Provide any Feedback for requirements	National Grid and Xoserve need more detail about specific API requirements e.g. which data sets are required for support
Capacity FAQs	Submit any FAQs for inclusion	These have now all been gathered and will be included in the agenda item today
Data Enhancements	Any feedback relevant for 2019 delivery to be provided by April	Feedback from industry to be assessed for 2019/20 delivery plans
Data Enhancements update	Provide list of first scoped requirements for delivery in 2019	To be covered at the Forum today

Feedback Since Last Forum

Feedback	Description	Actions
Dial in option for Forum	Positive feedback from test at previous forum	This will remain in place on an ongoing basis

Gas System
Operator

02

Operational
Overview

nationalgrid

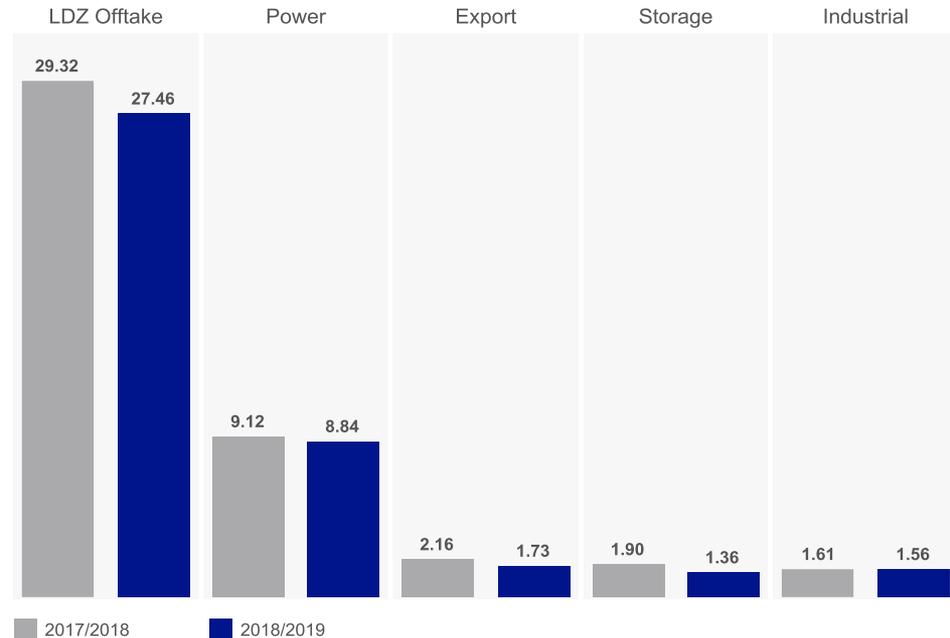


Demand - Components

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.

Winter Demand (bcm)
(1st October to 28th February)



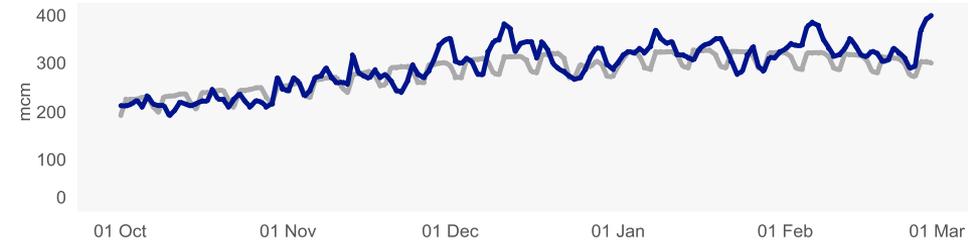
Demand – Comparison to seasonal norm

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

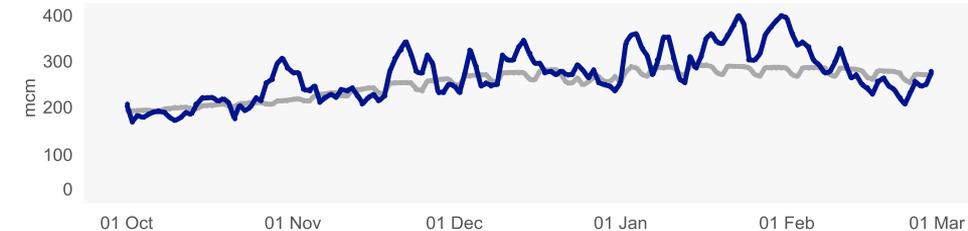
Winter 2017/2018

(1st October to 28th February)



Winter 2018/2019

(1st October to 28th February)



■ Demand

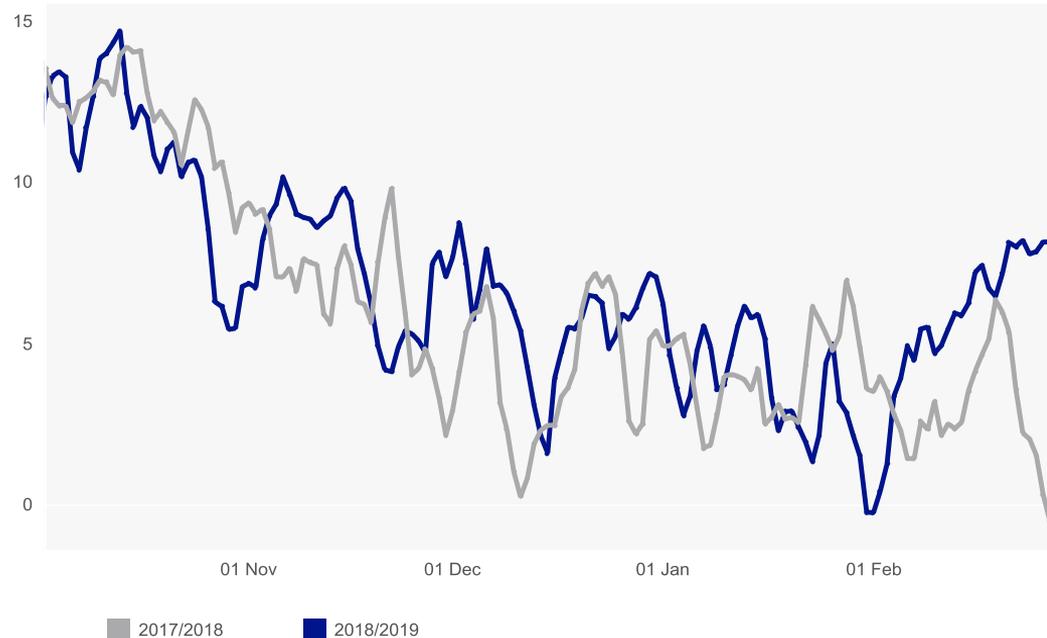
■ Seasonal Normal Demand

CWV

CWV has been significantly higher during February than the same period last year.

Previous winter months were more consistent across the 2 years

Winter CWV
(1st October to 28th February)

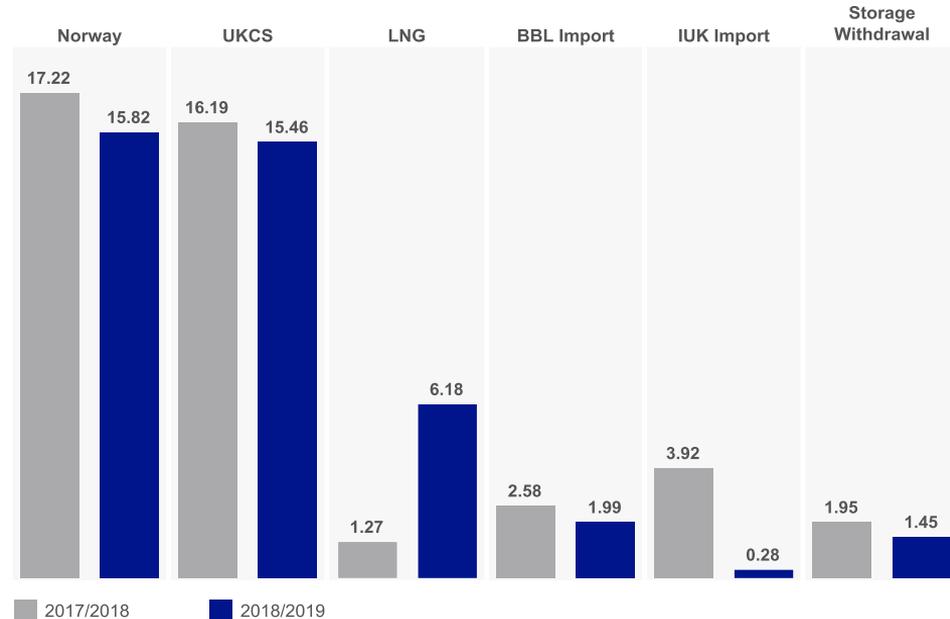


Supply - Components

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.

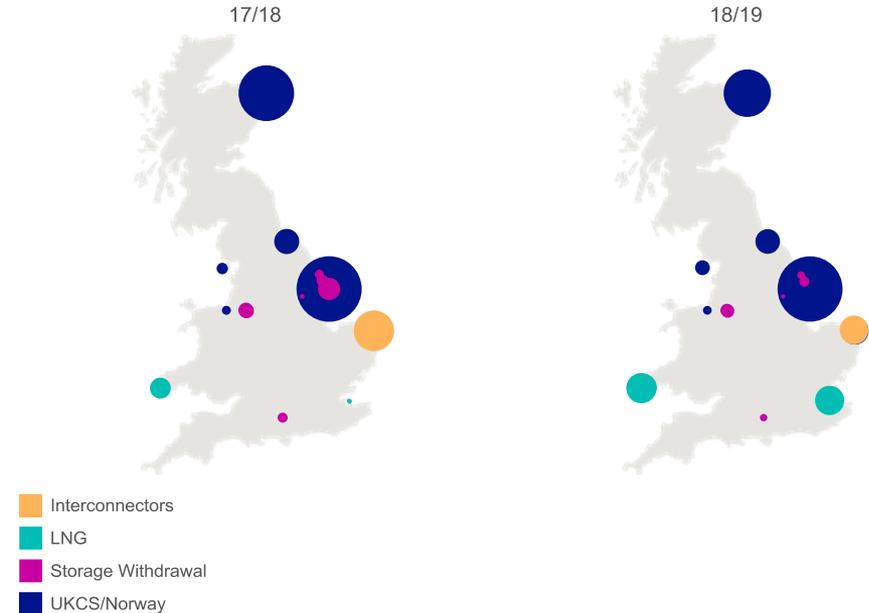
Winter Supply (bcm)
(1st October to 28th February)



Supply - Location

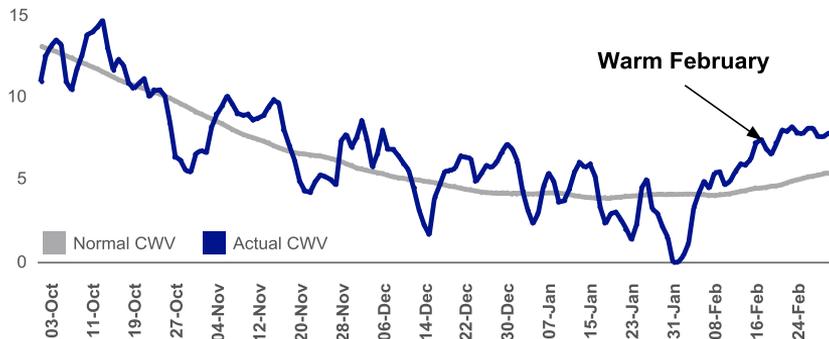
With the increase in supply from LNG, the locational profile of supply has changed somewhat, with a larger proportion of gas in the South East and the West.

Winter Supply by Location
(1st October to 28th February)

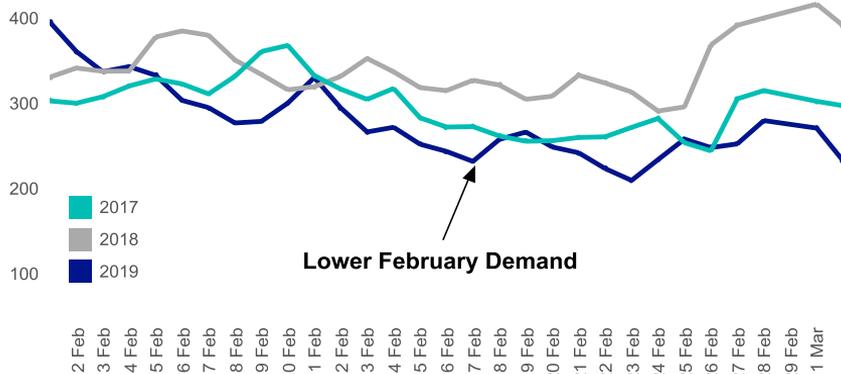


Lower demand due to warmer temperatures

CWV vs Seasonal Normal (Winter 2018/19)



Demand 1 Feb - 2 Mar (Current Yr & 2 Previous Yrs)



1st March 2018 vs 2019

2018

2019



CWV

-3.94

7.59

Demand

417mcm

271mcm

01st March 2019

- Terminal
- Compressor Station
- Pipeline size
- Interconnector
- Storage Site
- Extremity

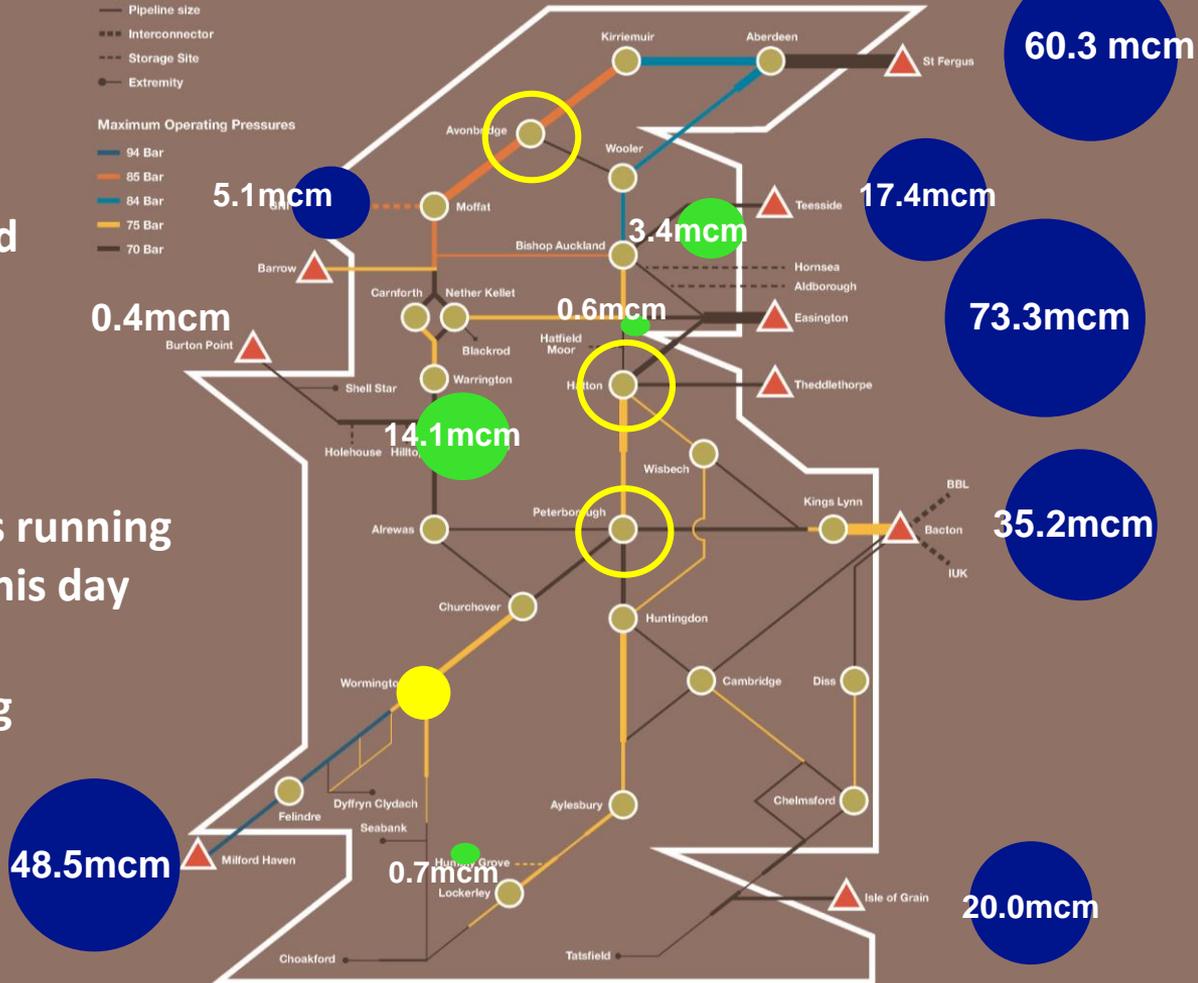
Maximum Operating Pressures

- 94 Bar
- 85 Bar
- 84 Bar
- 75 Bar
- 70 Bar

Lower Fergus
Inputs means
Avonbridge could
be taken offline

This meant no
compression was running
in the north on this day

Emissions testing
wormington



48.5mcm

60.3 mcm

17.4mcm

73.3mcm

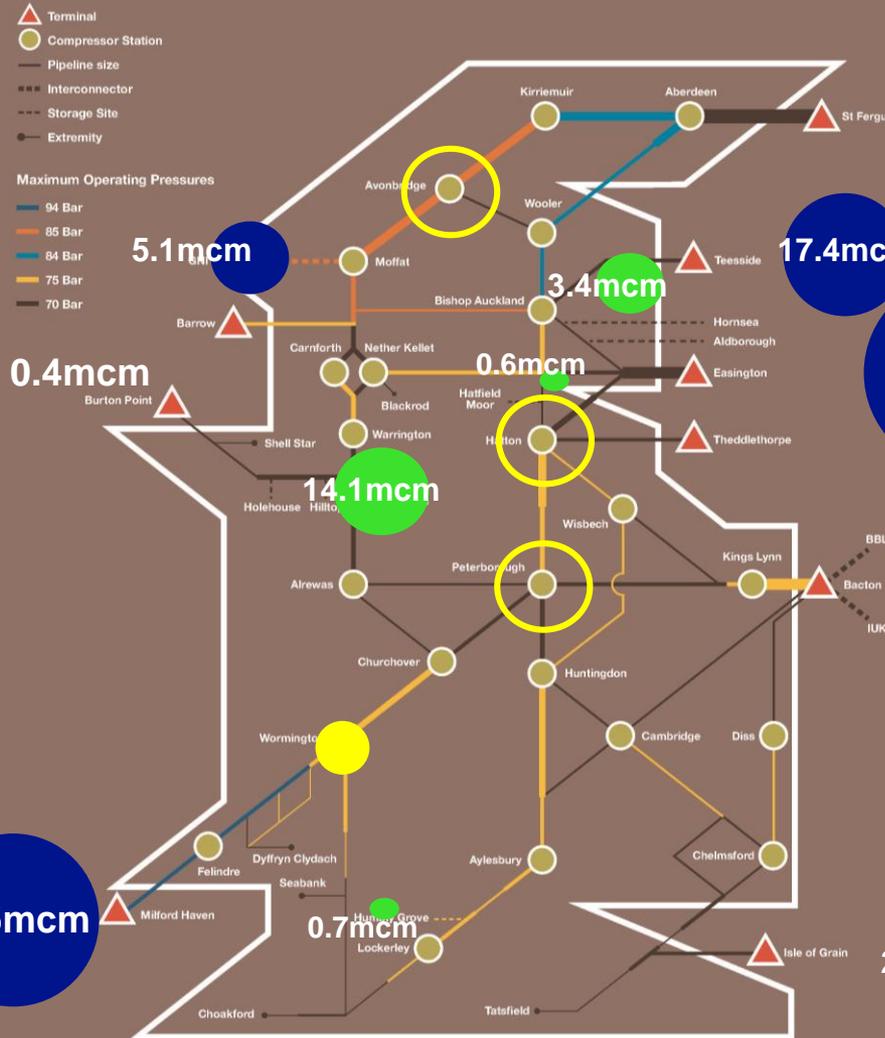
35.2mcm

20.0mcm

01st March 2019

Peterborough on outage,
Hatton on reduced
running hours

This means a
higher linepack
and pressures
towards the
central region



60.3 mcm

17.4mcm

73.3mcm

35.2mcm

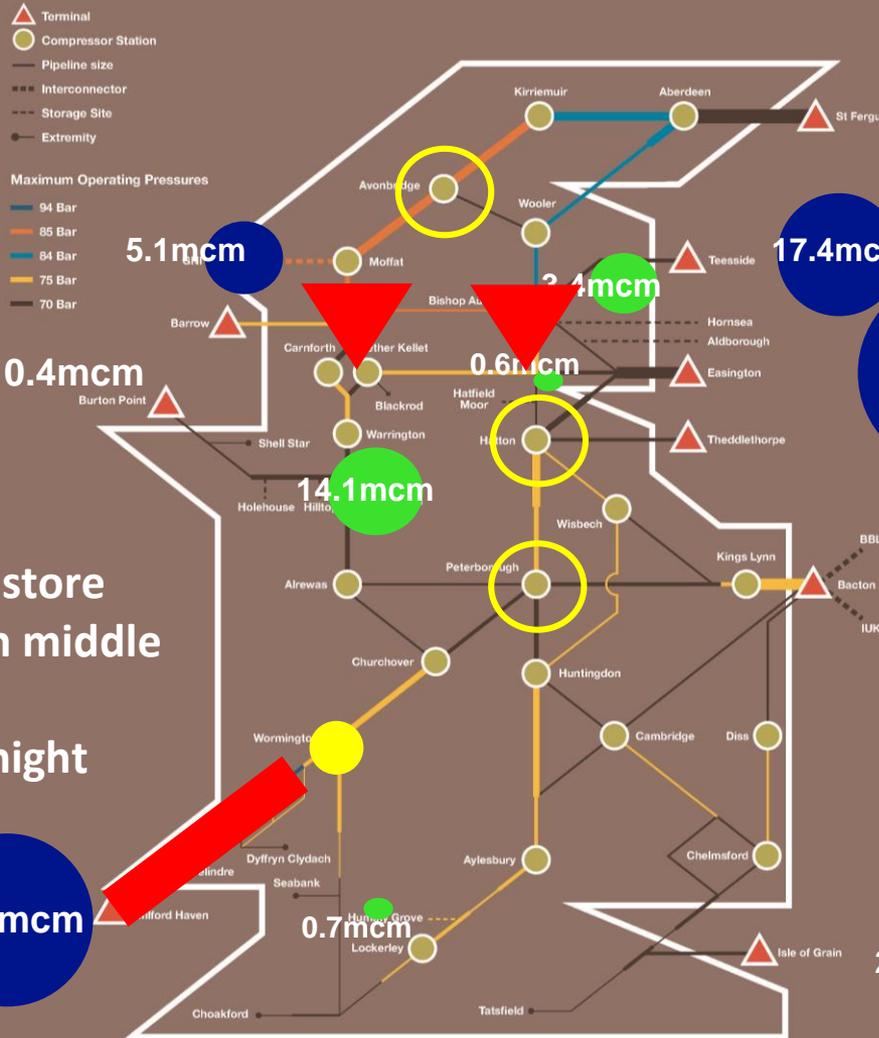
48.5mcm

20.0mcm

01st March 2019

Flow Control
Valves used at
Longtown and
Bishop
Auckland to
prevent drift
north

Feeder 28 utilised to store
gas to create space in middle
and meet south
wales/seabank overnight



48.5mcm

5.1mcm

0.4mcm

14.1mcm

0.6mcm

0.7mcm

2.4mcm

17.4mcm

73.3mcm

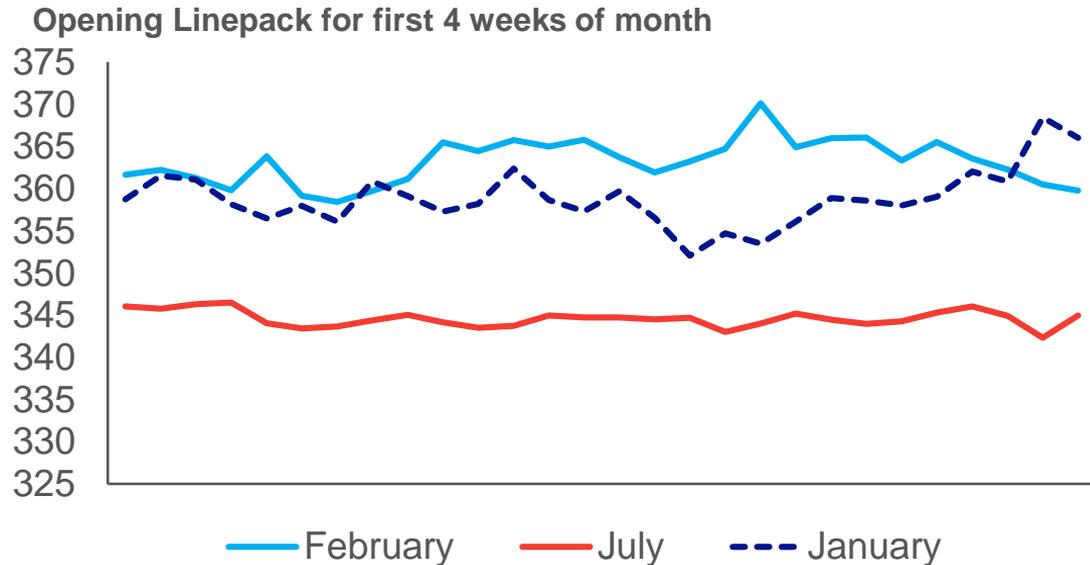
35.2mcm

20.0mcm

60.3 mcm

Ensures
compression is
not needed in
the north

Linepack



- High Linepack has predominantly been utilised during February even with warmer weather
- Colder weather can see linepack depleted
- This mitigates impact of a sudden cold snap

Gas System
Operator

03

LNG Future
Outlook

nationalgrid





THE OXFORD
INSTITUTE
FOR ENERGY
STUDIES

A RECOGNIZED INDEPENDENT CENTRE OF THE UNIVERSITY OF OXFORD



LNG Outlook – March 2019

Howard Rogers, C.Eng, FIChemE

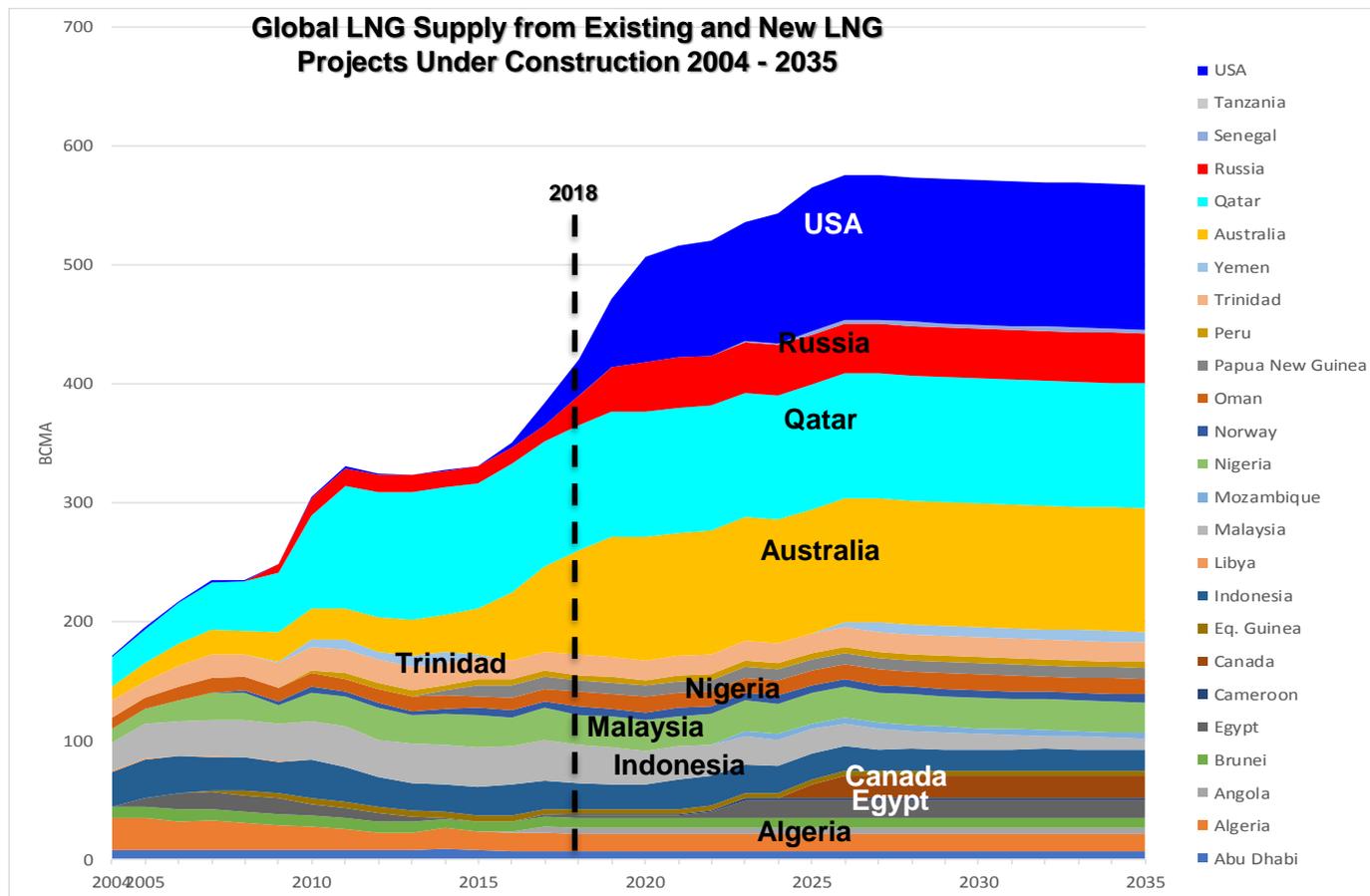
Chairman and Senior Research Fellow, OIES
Natural Gas Programme

14th March 2019





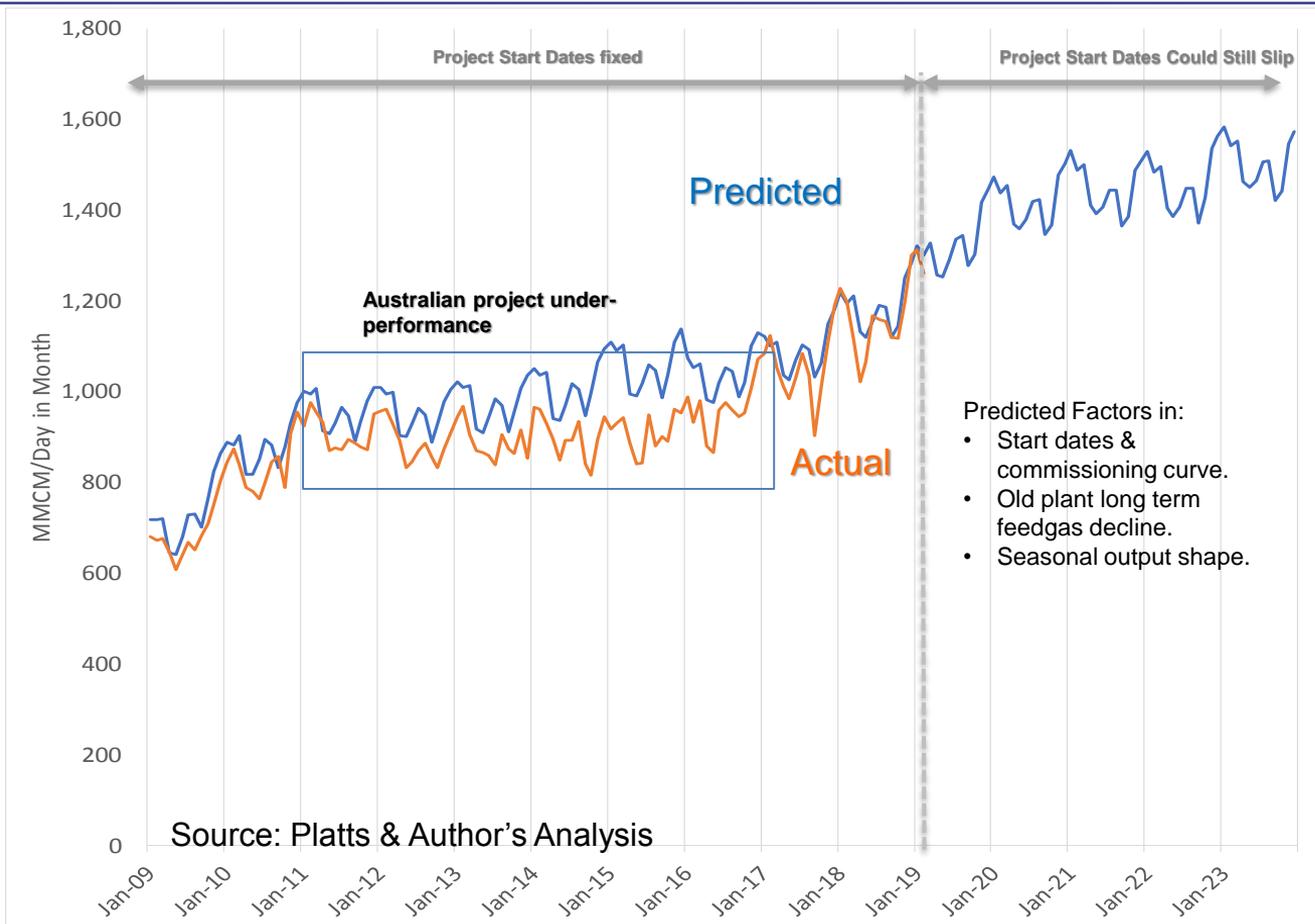
The Oncoming LNG Supply Wave – Existing & FID'd Projects Only



Sources: Platts, Author's Analysis



Global LNG Supply – MMCM/Day in Month Jan 2009 – Dec 2023





2018 LNG Imports

– Generally Muted apart from China and Korea

	BCMA			Yo Y Change		%	
	2014	2015	2016	2017	2018		
Asia							
Japan	122.0	112.8	109.8	111.2	111.0	-0.2	-0.2%
South Korea	51.4	43.5	44.5	47.5	57.7	10.1	21.3%
Taiwan	17.7	19.2	19.9	22.0	22.9	0.9	4.0%
China	27.4	26.2	34.4	50.5	69.1	18.5	36.7%
India	19.6	20.9	26.1	26.3	29.6	3.3	12.7%
Indonesia	1.4	3.1	4.2	2.8	3.8	1.0	37.4%
Thailand	1.8	3.6	4.0	5.3	5.6	0.3	6.3%
Singapore	2.2	2.9	3.4	3.0	2.4	-0.6	-19.6%
Malaysia	1.8	2.1	1.8	2.3	1.9	-0.4	-17.3%
Pakistan	0.0	1.5	4.7	6.7	9.2	2.5	37.0%
Bangladesh	0.0	0.0	0.0	0.0	0.8	0.8	N/A
Total Asia	245.2	235.7	252.6	277.6	314.0	36.4	13.1%
MENA							
Kuwait	3.0	4.2	4.9	4.2	5.4	1.1	26.8%
Dubai/UAE	2.3	3.1	4.3	3.2	1.2	-2.0	-62.5%
Israel	0.0	0.0	0.4	0.6	0.7	0.2	26.9%
Jordan	0.0	2.6	4.5	4.6	3.8	-0.8	-17.4%
Egypt	0.0	3.6	10.0	7.9	2.8	-5.2	-65.1%
Total MENA	5.3	13.5	24.1	20.6	13.9	-6.7	-32.4%
North America							
US	1.9	2.6	2.7	2.3	1.9	-0.5	-20.0%
Canada	0.5	0.7	0.3	0.5	0.6	0.2	40.5%
Mexico	6.8	6.6	5.7	6.6	7.1	0.5	7.8%
Total N. America	9.2	9.9	8.7	9.4	9.6	0.2	2.5%

Source: Platts LNG Service



2018 LNG Imports

– Generally Muted apart from China and Korea

	2014	2015	2016	2017	2018		
S & C America							
Puerto Rico	1.8	1.8	2.0	1.5	1.8	0.4	27.0%
Dominican Republic	1.5	1.4	1.2	1.5	1.9	0.5	31.7%
Argentina	6.4	6.1	4.8	4.4	4.5	0.0	0.6%
Brazil	7.2	6.8	2.2	2.1	2.9	0.8	37.4%
Chile	3.5	4.3	4.6	5.0	4.5	-0.5	-10.1%
Jamaica	0.0	0.0	0.0	0.1	0.3	0.2	241.0%
Colombia	0.0	0.0	0.0	0.0	0.3	0.3	N/A
Panama	0.0	0.0	0.0	0.0	0.1	0.1	N/A
Total S&C America	20.4	20.3	14.8	14.5	16.3	1.8	12.4%
Europe							
Belgium	1.5	2.5	1.2	1.3	3.0	1.7	130.9%
France	6.5	6.0	6.3	9.7	11.2	1.6	16.2%
Greece	0.6	0.7	1.0	1.7	1.3	-0.4	-25.4%
Italy	4.7	5.6	6.1	8.0	8.0	0.0	0.2%
Portugal	1.7	1.7	1.7	3.6	3.8	0.3	8.1%
Spain	13.0	12.3	13.6	16.4	15.4	-1.1	-6.4%
Turkey	7.8	7.5	7.4	9.8	10.8	1.0	10.6%
UK	11.9	13.3	10.1	6.5	6.6	0.1	1.6%
Netherlands	0.9	1.1	0.4	0.9	2.4	1.4	153.4%
Lithuania	0.1	0.4	1.4	1.3	0.8	-0.5	-34.7%
Sweden	0.0	0.3	0.4	0.3	0.2	-0.1	-40.5%
Norway	0.0	0.0	0.2	0.1	0.0	-0.1	-100.0%
Malta	0.0	0.0	0.0	0.2	0.6	0.4	208.0%
Poland	0.0	0.0	1.1	1.7	2.8	1.1	65.8%
Total Europe	48.6	51.5	50.8	61.4	66.9	5.5	9.0%
Total World	328.6	331.0	351.0	383.5	420.8	37.3	9.7%



Europe Region Balance 2010 – 2018 (est.)

	2010	2011	2012	2013	2014	2015	2016	2017	2018*
Demand	562.6	515.6	507.0	505.0	455.7	475.9	506.4	530.6	519.1
Production (incl. Norway)	288.3	267.6	268.3	261.7	249.0	244.1	240.6	244.1	235.7
(Net) Pipeline Imports:									
Russia	127.3	135.7	133.6	151.7	132.0	141.4	158.9	176.1	175.3
Algeria	31.1	27.7	30.6	26.5	20.7	22.1	32.8	32.2	32.1
Libya	8.4	2.1	6.0	5.4	6.0	6.8	4.6	4.5	4.2
Iran	6.9	7.2	7.6	8.1	8.1	7.5	7.4	9.0	7.4
Azerbaijan	4.0	3.4	3.1	3.9	5.5	5.9	6.2	6.4	7.2
LNG Exports	4.7	3.9	4.7	3.9	4.4	6.1	6.3	5.5	6.5
LNG Imports	89.2	89.4	66.0	48.2	48.6	51.5	50.8	61.2	66.4
Storage Withdrawal & Balancing Error	12.0	-13.6	-3.3	3.3	-9.9	2.8	11.3	2.4	-2.7
Net Russian Pipeline Imports	127.3	135.7	133.6	151.7	132.0	141.4	158.9	176.1	175.3
Flow to Kaliningrad	1.4	2.0	2.1	2.1	2.0	2.0	2.2	2.4	3.2
Re-exports Russia and Belarus	0.5	0.6	0.7	0.4	0.6	0.4	0.3	0.0	0.1
Reverse Flow of Ukraine	0.0	0.0	0.1	2.1	4.9	10.1	10.9	13.8	10.9
Gross Russian Imports (IEA basis)	129.1	138.3	136.5	156.4	139.6	154.0	172.3	192.3	189.5
Gross Russian Imports (Russian basis)	137.1	146.9	144.9	166.0	148.2	163.5	182.9	204.2	201.2

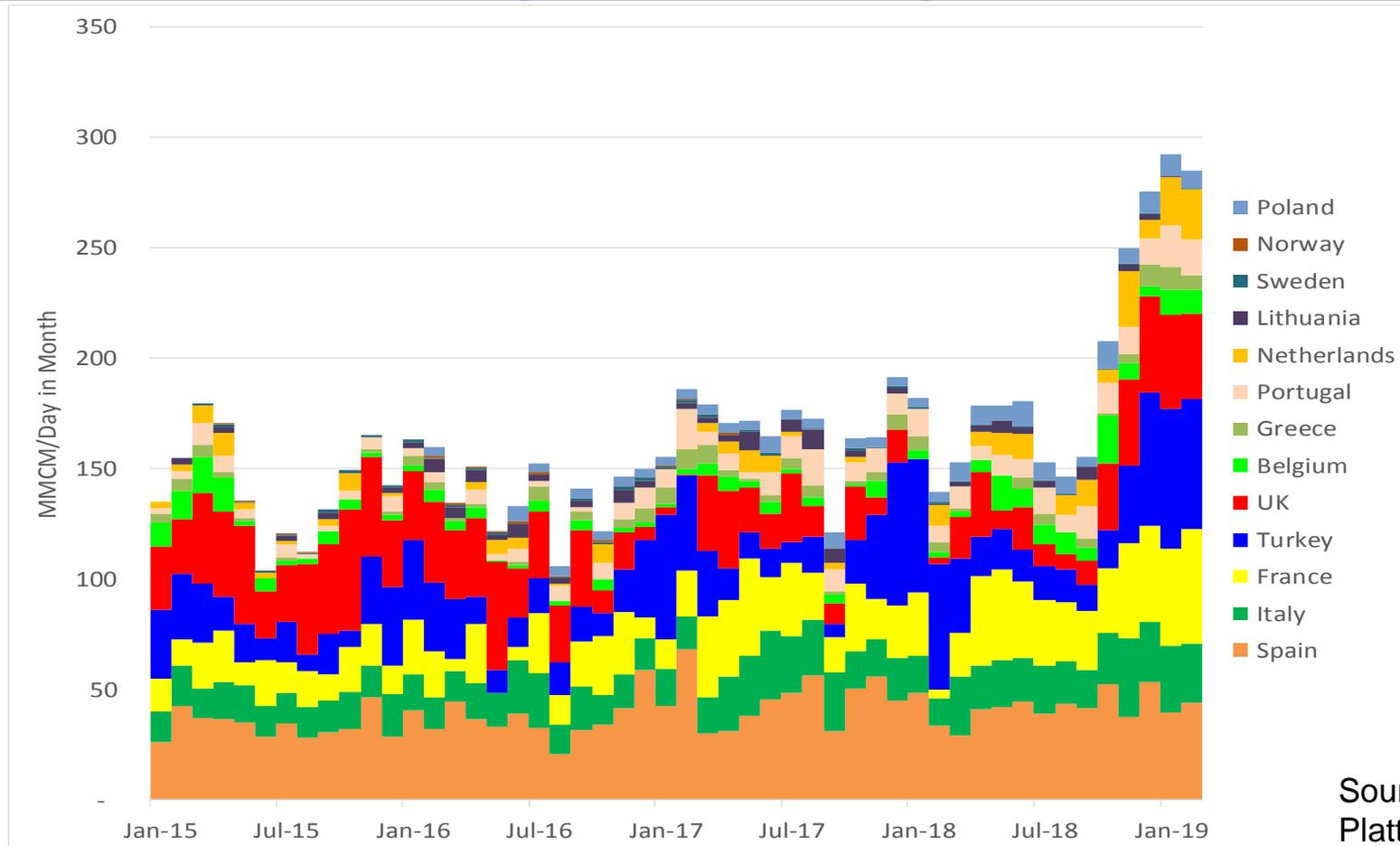
Note: Balance assuming 40 TJ/mmcm Europe Average

Sources: IEA, Eurostat, Platts, Author's Estimates



LNG Flows to Europe

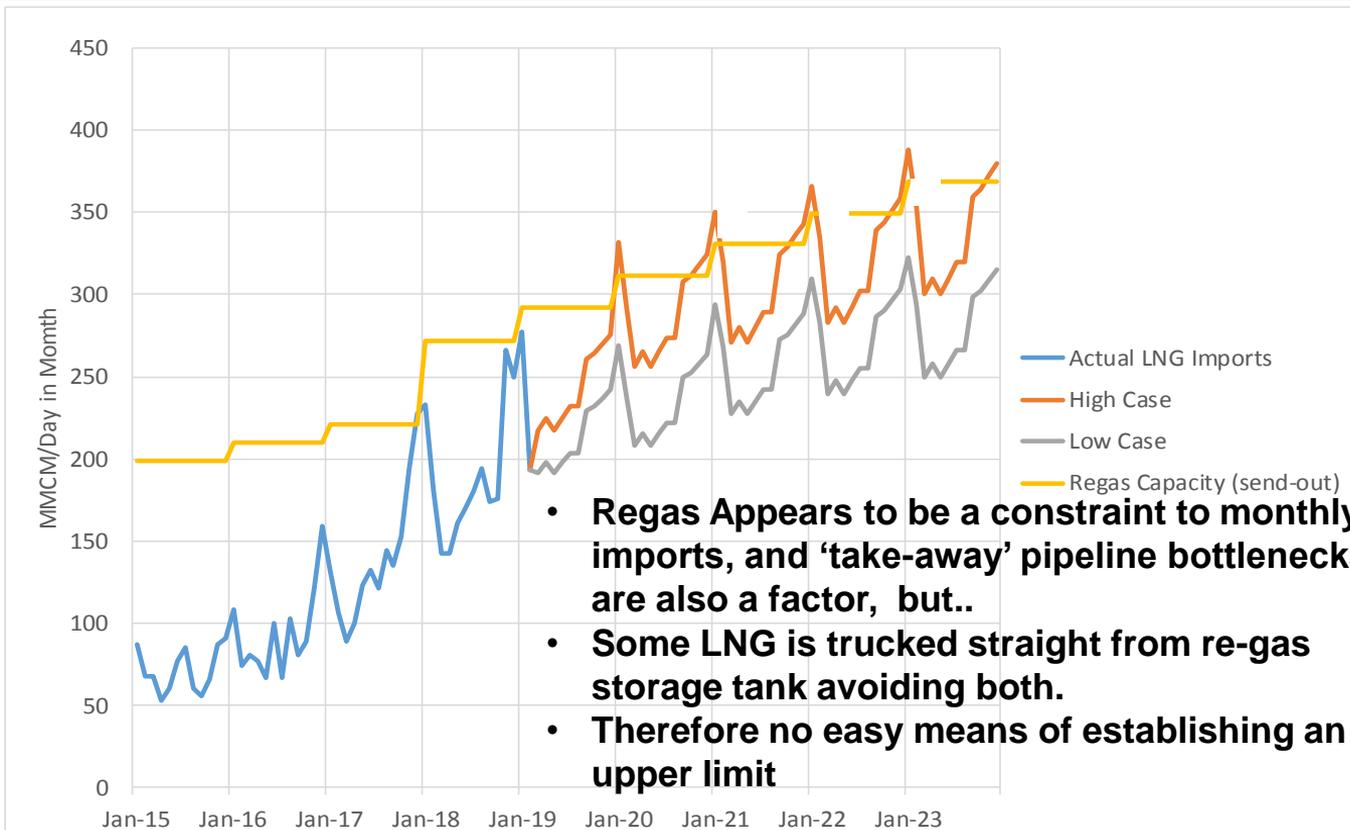
January 2015 – February 2019



Source:
Platts LNG



Chinese LNG Imports and Regas Capacity – 2015 - 2023

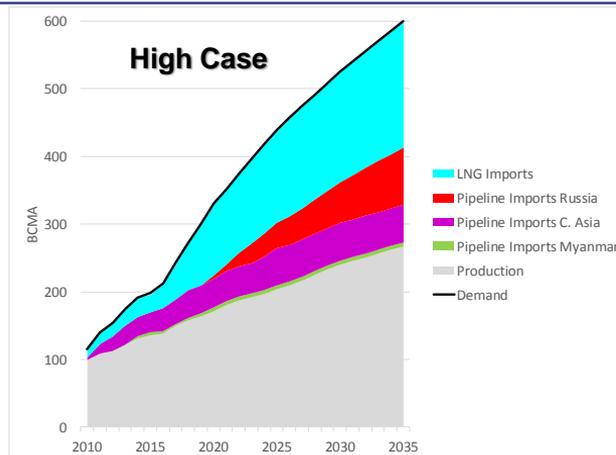
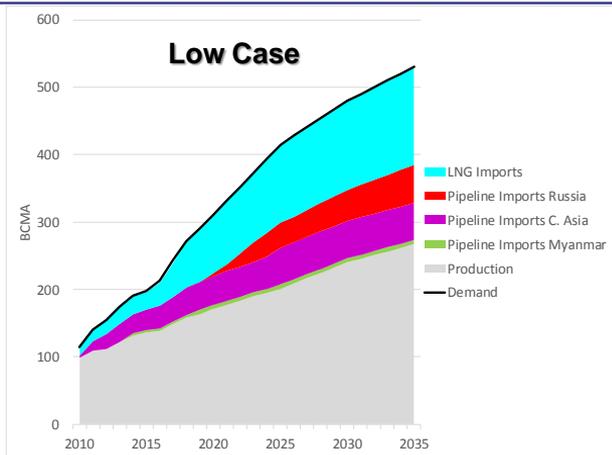


- **Regas Appears to be a constraint to monthly imports, and ‘take-away’ pipeline bottlenecks are also a factor, but..**
- **Some LNG is trucked straight from re-gas storage tank avoiding both.**
- **Therefore no easy means of establishing an upper limit**

Source: Platts, GIIGNL, Author’s Calculations

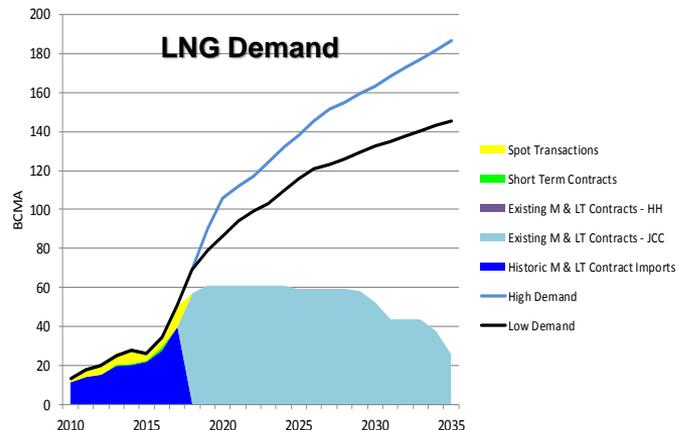


China



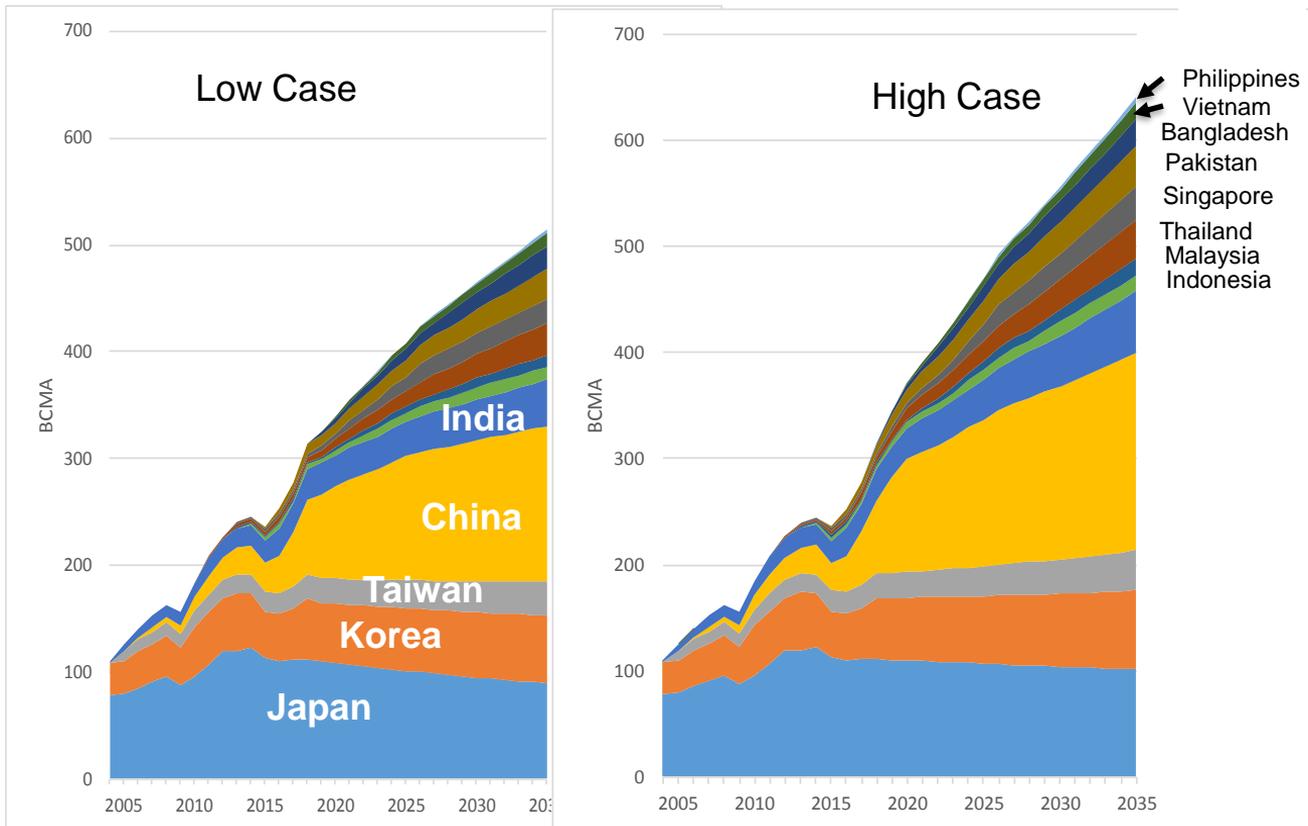
China:

- Gas Demand growth subject to:
 - Success of policy to displace coal with gas in power generation, space heating in Industry – 115 bcma in 5 years ?
- Growth of domestic production dependent on shale gas success.
- Scale of Central Asian imports expandable and timing and number of Russian pipeline projects uncertain.
- LNG Imports therefore lie in a wide range: 145 to 187 bcma by 2035.





Asian LNG Demand – Large Uncertainties

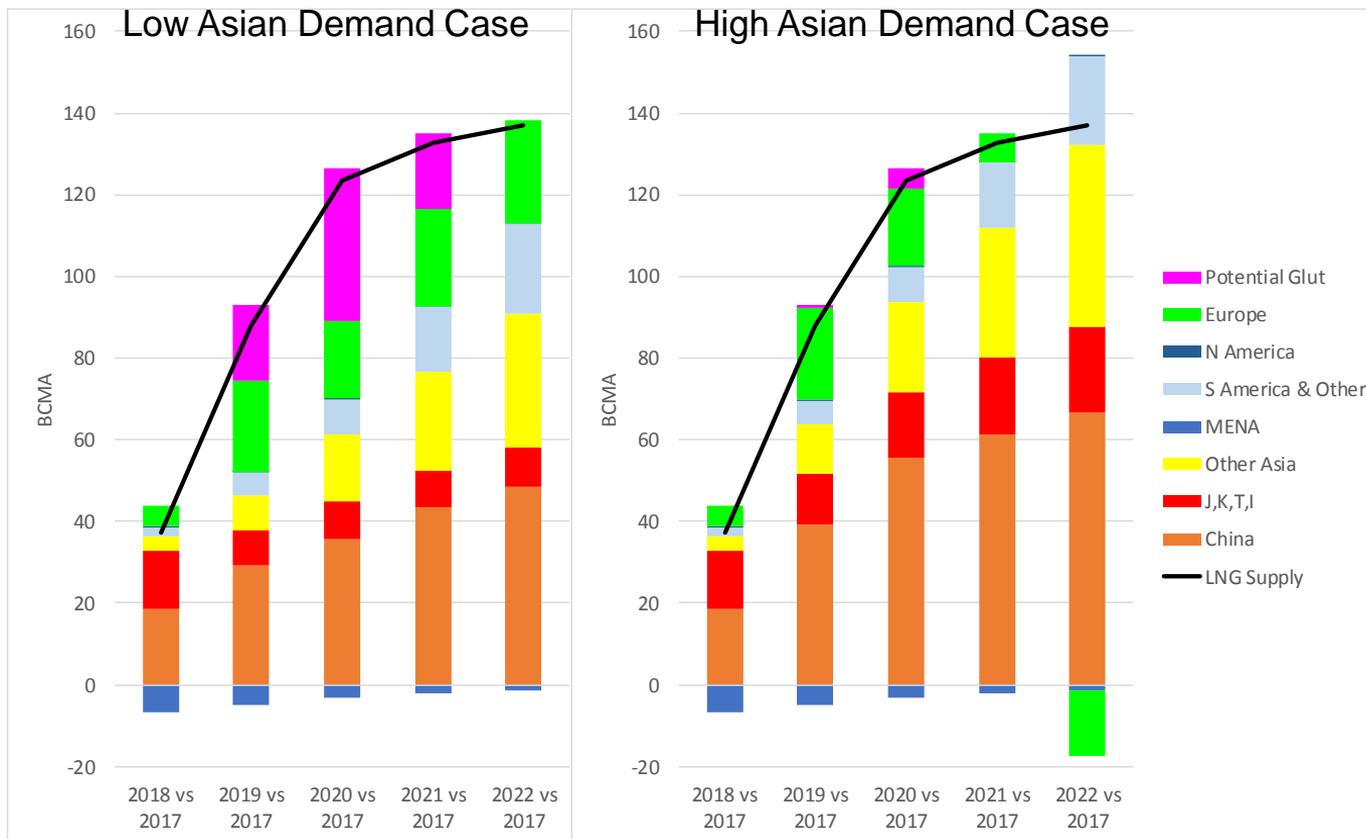


Source: Platts, Author's Calculations



LNG Supply and Demand – Versus 2017 Base

Low & High Asian LNG Demand Case

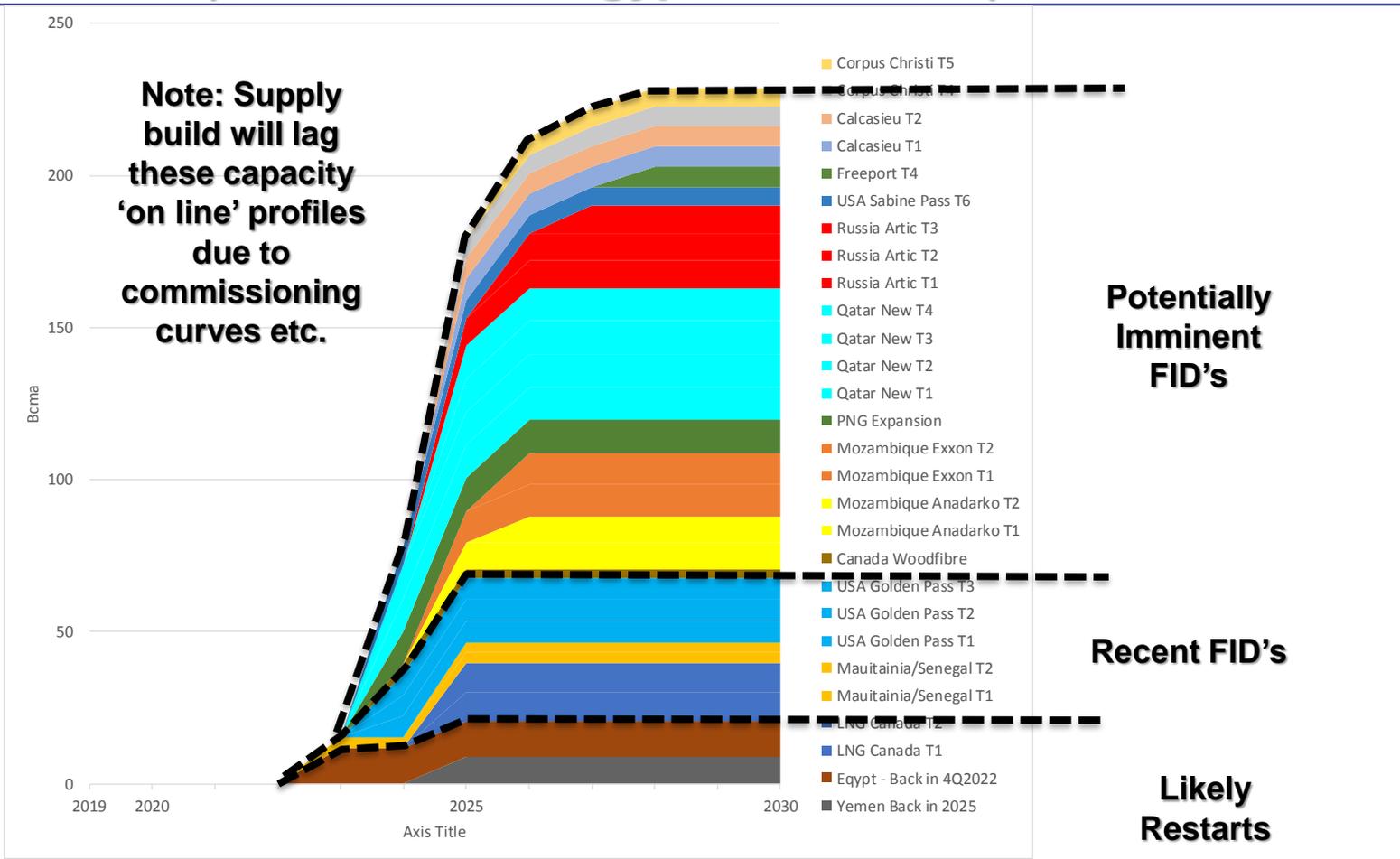


Assumes Russia 'Defends' exports to Europe of 160 Bcma

Sources: Platts, Author's Analysis

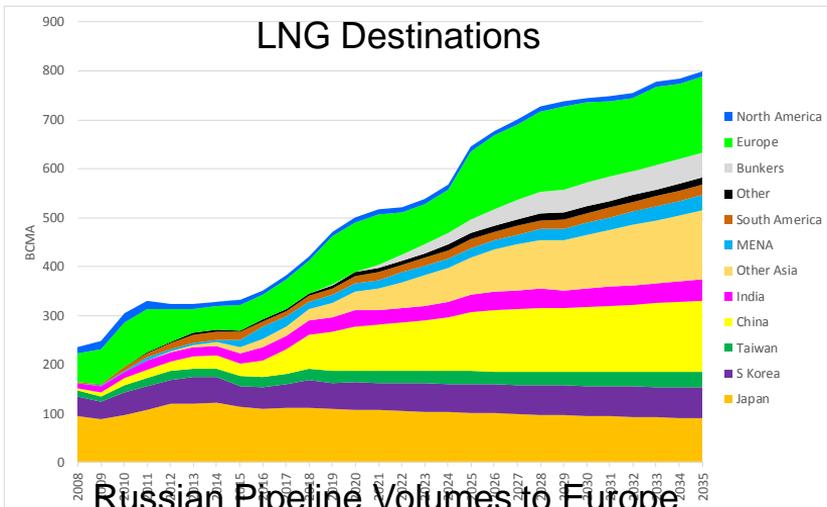


Recent and Prospective FID's (and Return of Egypt and Yemen)



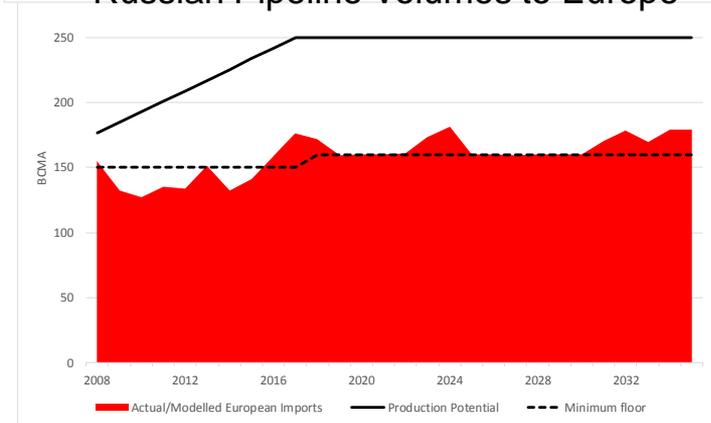


Low Asian LNG and Gas Demand Case LNG Market Destinations and European Russian Pipeline Gas imports



Increased European LNG imports to 2020 and beyond:

- to compensate for domestic production decline,
- In competition with Russian pipeline gas.



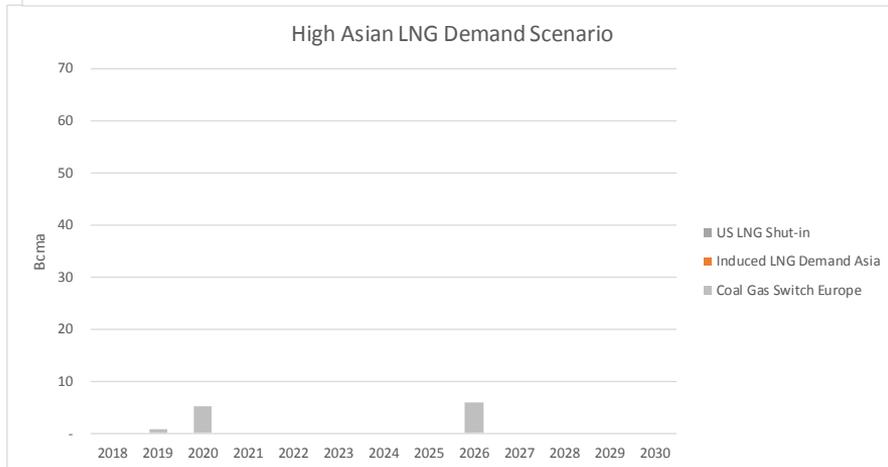
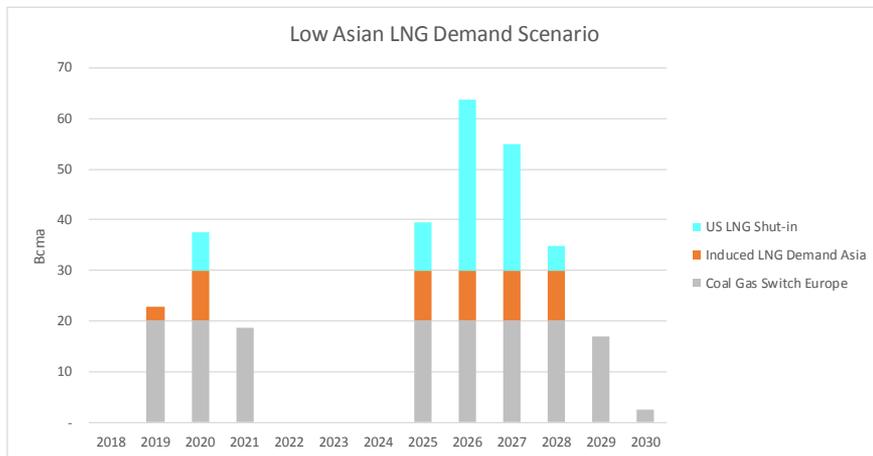
Russian exports to Europe grow in early/mid 2020s until checked by later wave of new LNG supply. Timing & scale uncertain.

Russian Exports to Europe well above prevailing take or pay and most contracts will have moved to hub pricing. Russia has some pricing power.

Sources: Platts, IEA, Author's Analysis



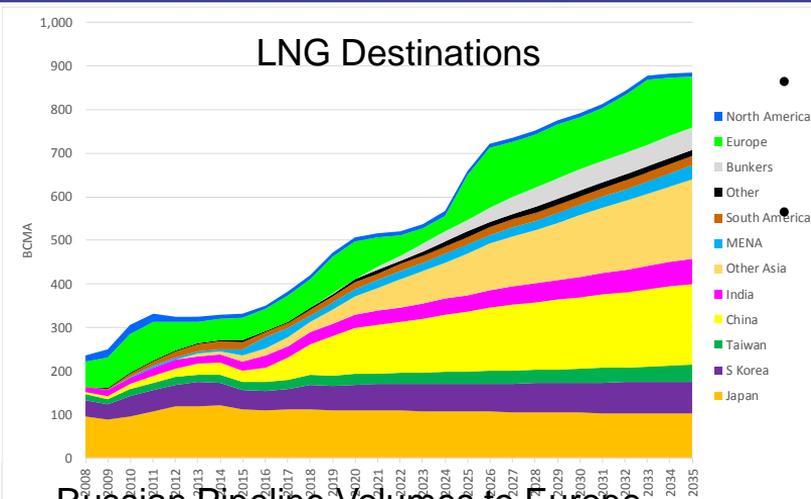
Glut Clearance Mechanisms



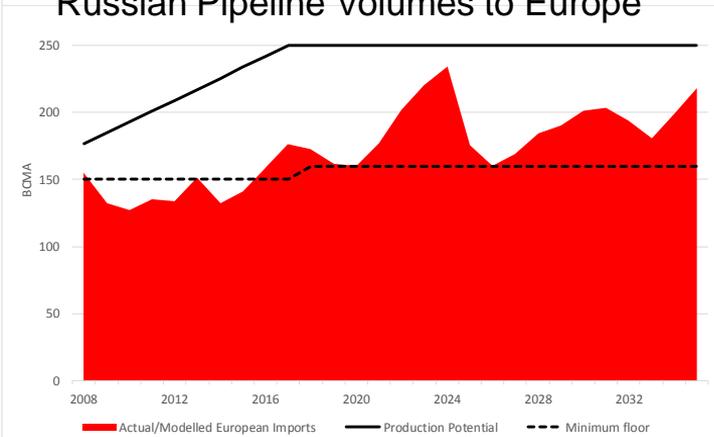
Source:
Author's
Calculations



High Asian LNG and Gas Demand Case - LNG Market Destinations and European Russian Pipeline Gas imports



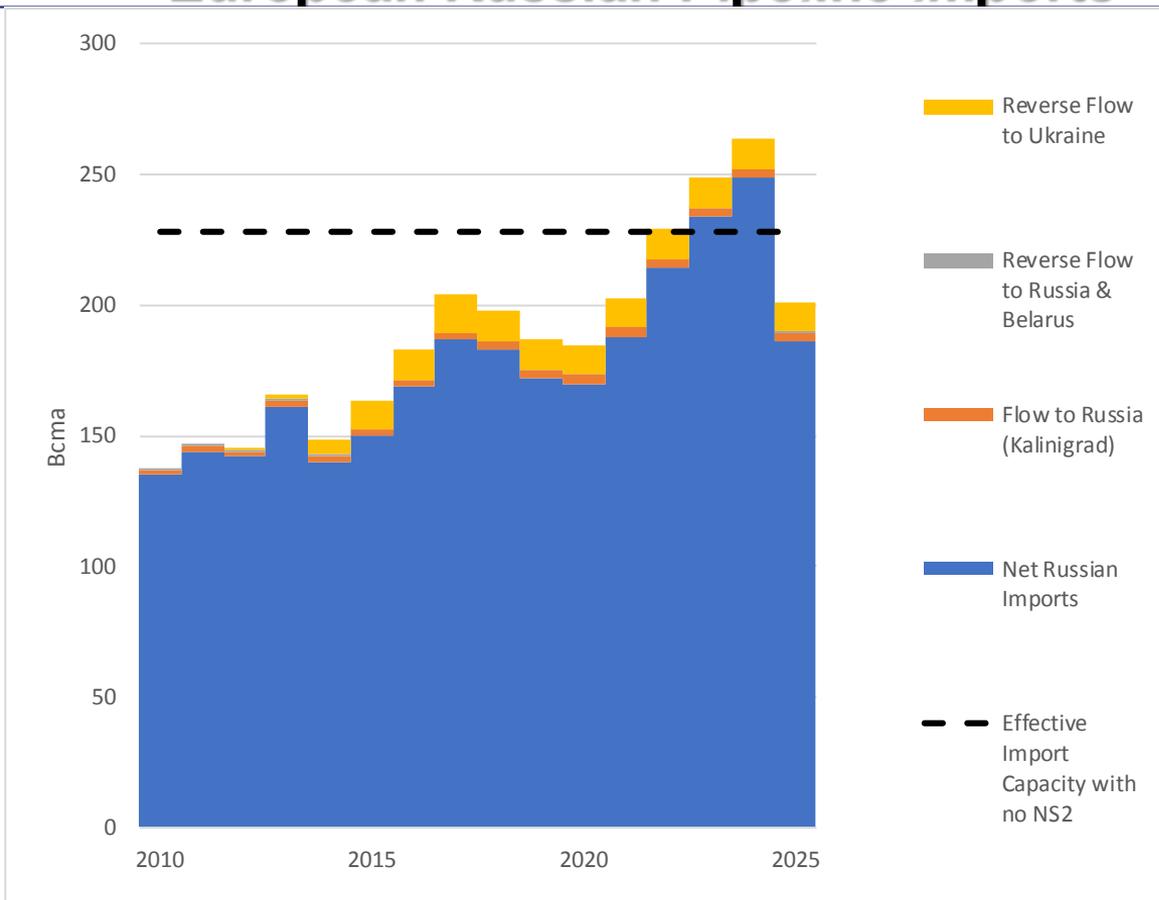
- LNG volumes for Europe partly offset domestic production decline
- Russian exports to Europe ‘spike’ in early 2020s:
 - as LNG supply increasingly targets Asia.
 - And next wave of LNG projects ‘too late’ to compensate.



- Russian flows fall in mid 2020s as next LNG wave arrives – but this is temporary.
- Russia has strong market power over European hubs and Asian LNG spot price.
- Compelling case for Nordstream 2 based on flow dynamics.



Impact of High Asian Demand Case on European Russian Pipeline Imports

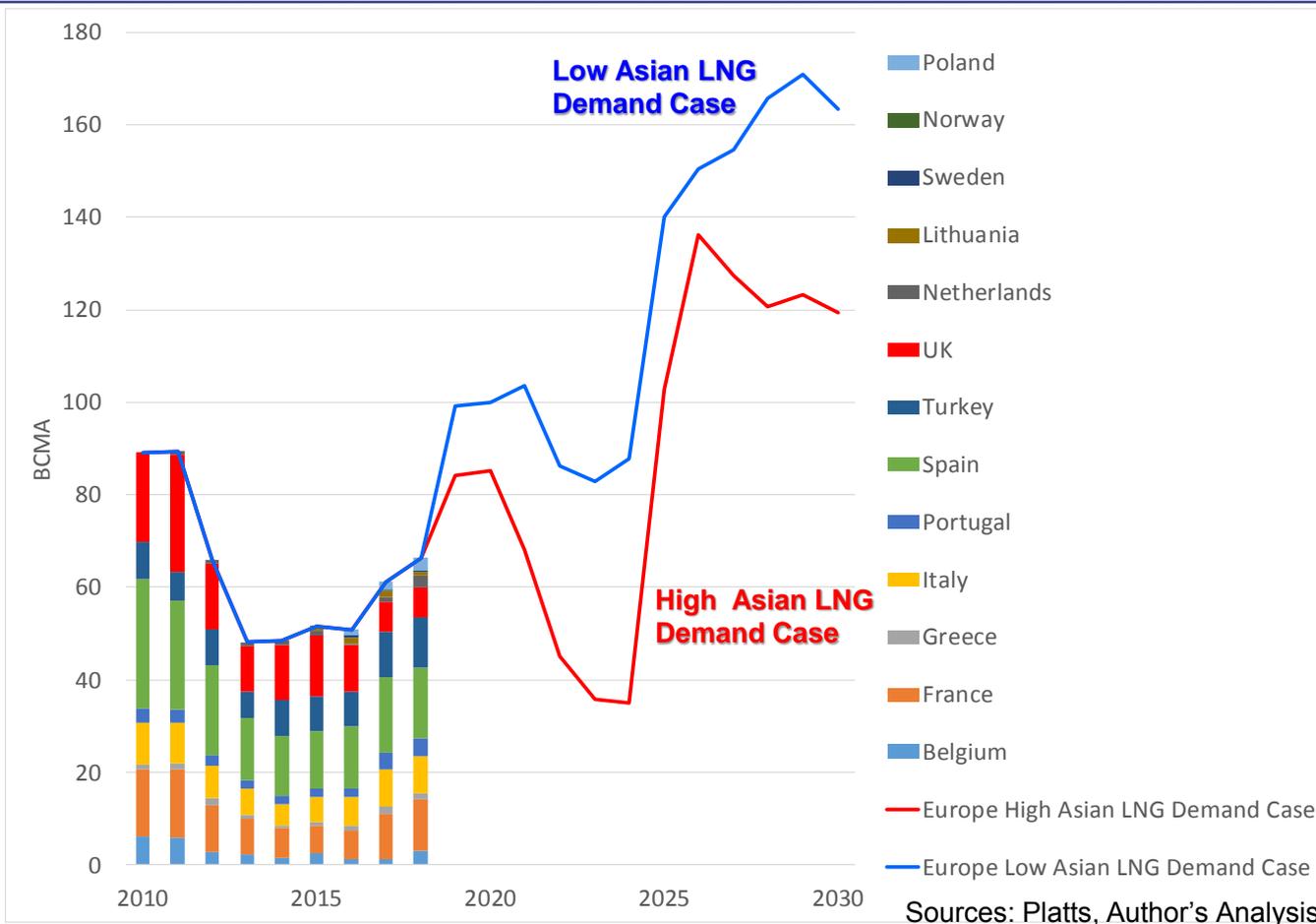


* Russian CV and temperature basis

Sources: Author's Analysis

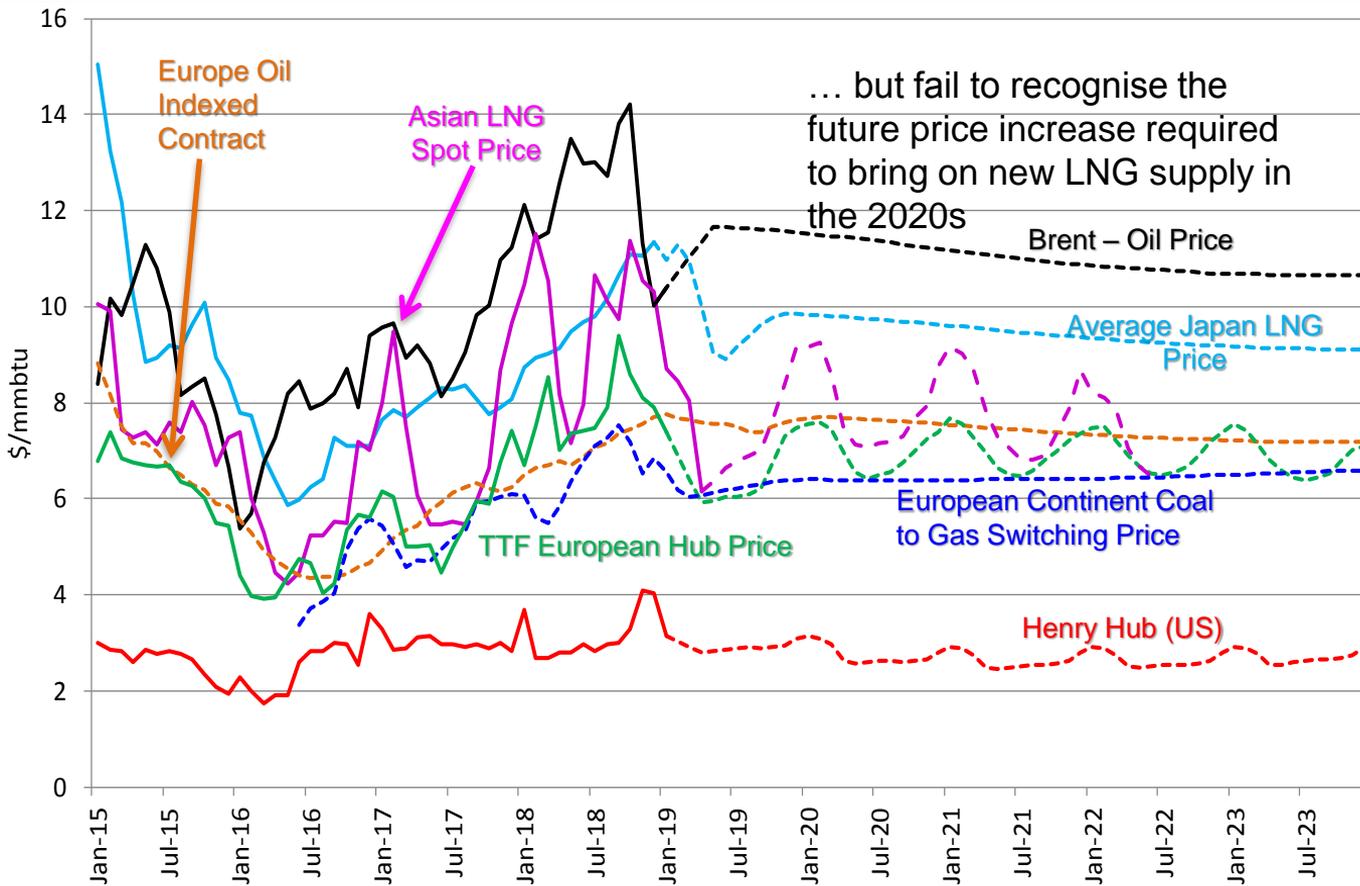


LNG Flows to Europe 2010 - 2030





Forward curves indicate future convergence between European hub and Asian spot LNG prices.



SOURCES: Platts, EIA, Argus, CME



Thank You
for your kind attention.

Howard V Rogers
Chairman & Senior Research Fellow,
OIES Natural Gas Programme
howard.rogers@oxfordenergy.org

Gas System
Operator

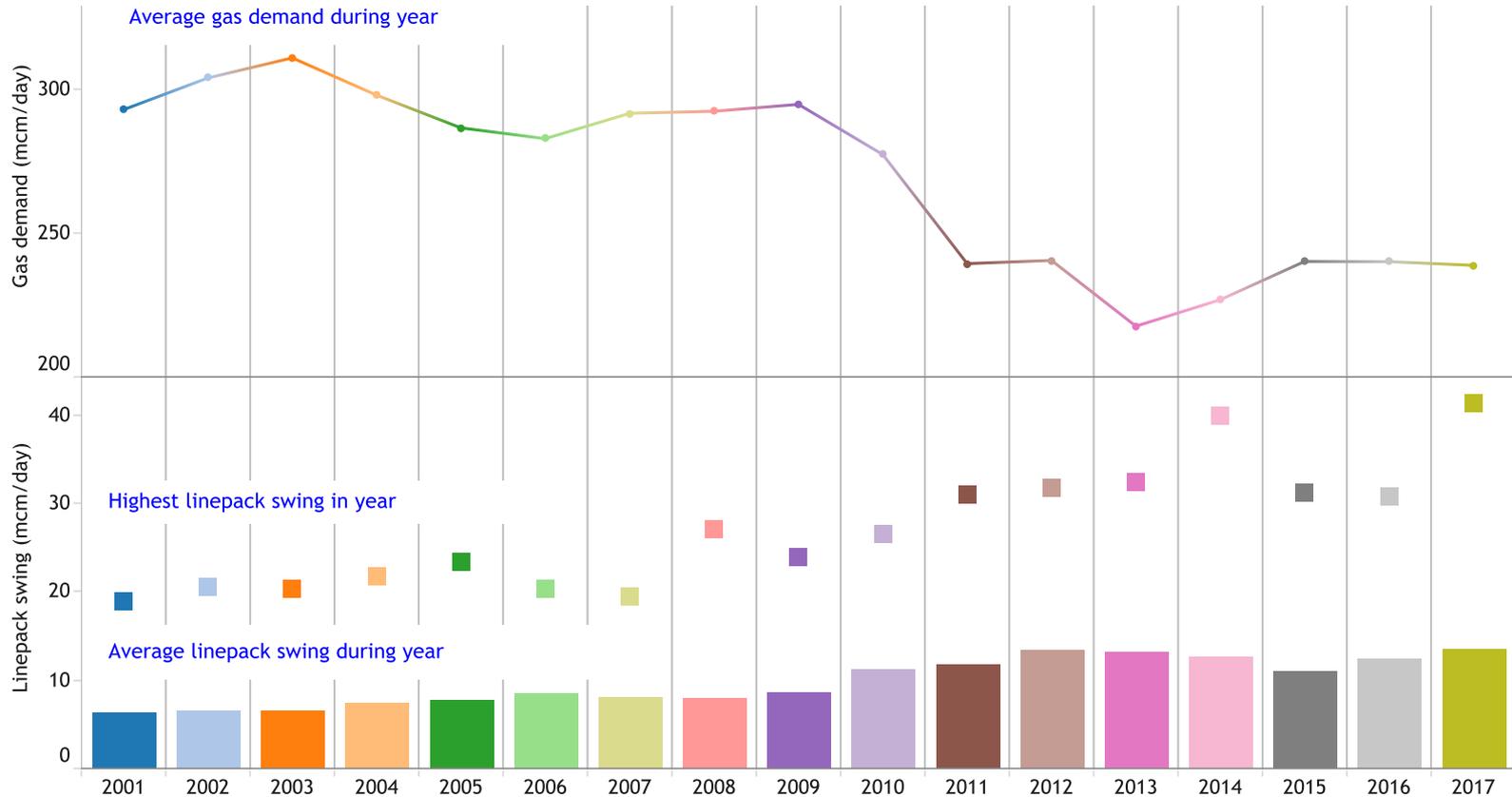
04

GFOP – within
day study

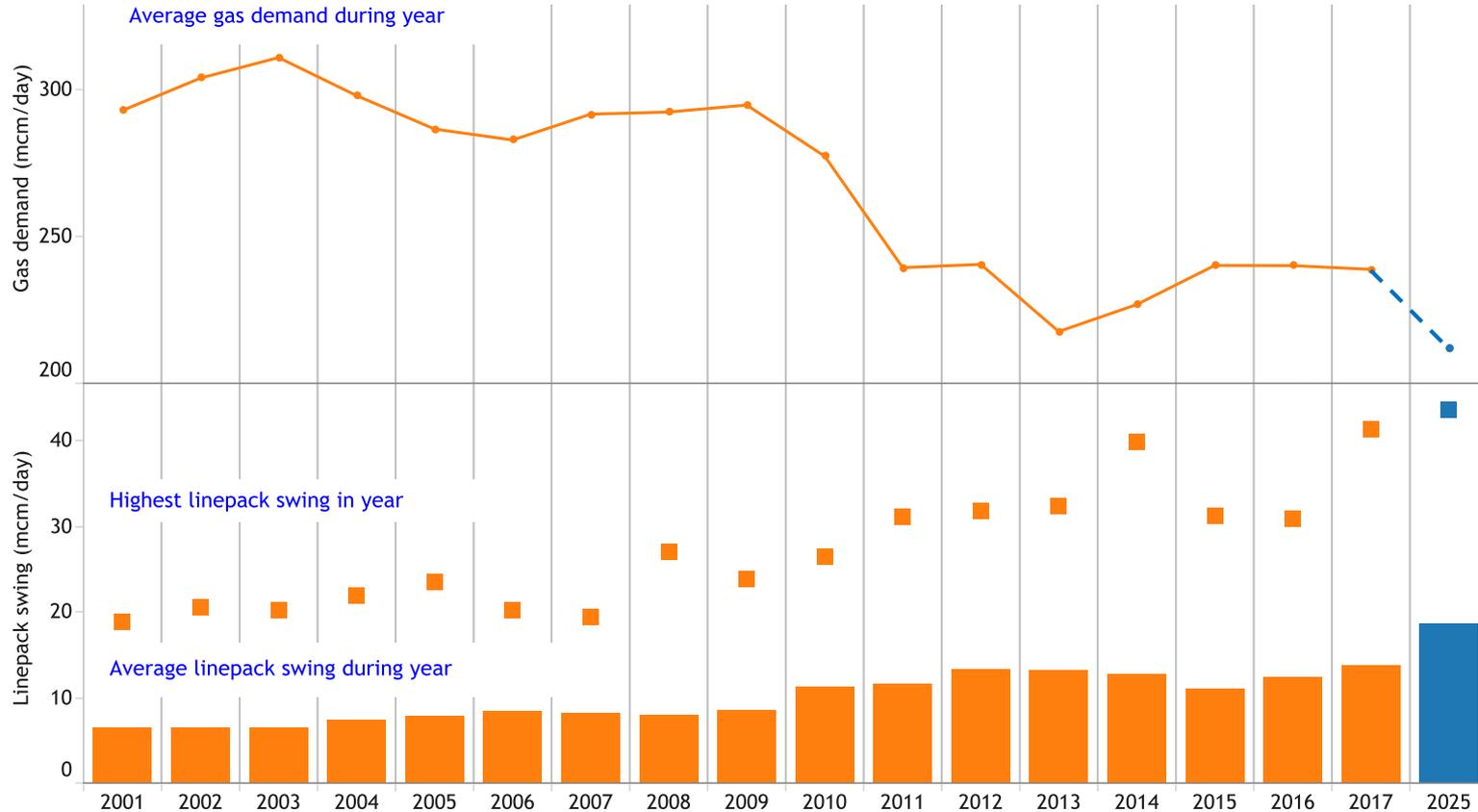
nationalgrid



Over the last two decades linepack swing has increased despite gas demand decreasing. This shows we now accommodate much wider imbalances in supply and demand during a gas day.

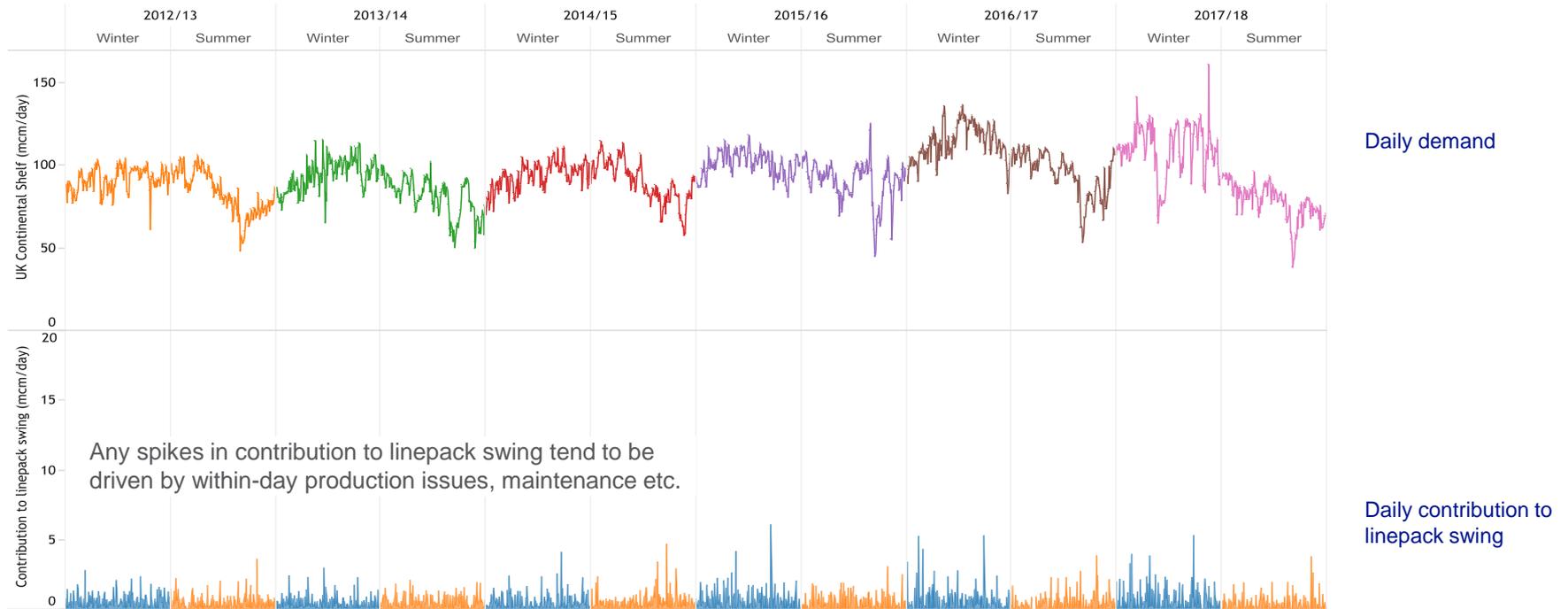


**Using your insights, we have forecast within-day behaviour in 2025.
We anticipate that the frequency of large linepack swing days will increase.**



1) UKCS supply is declining

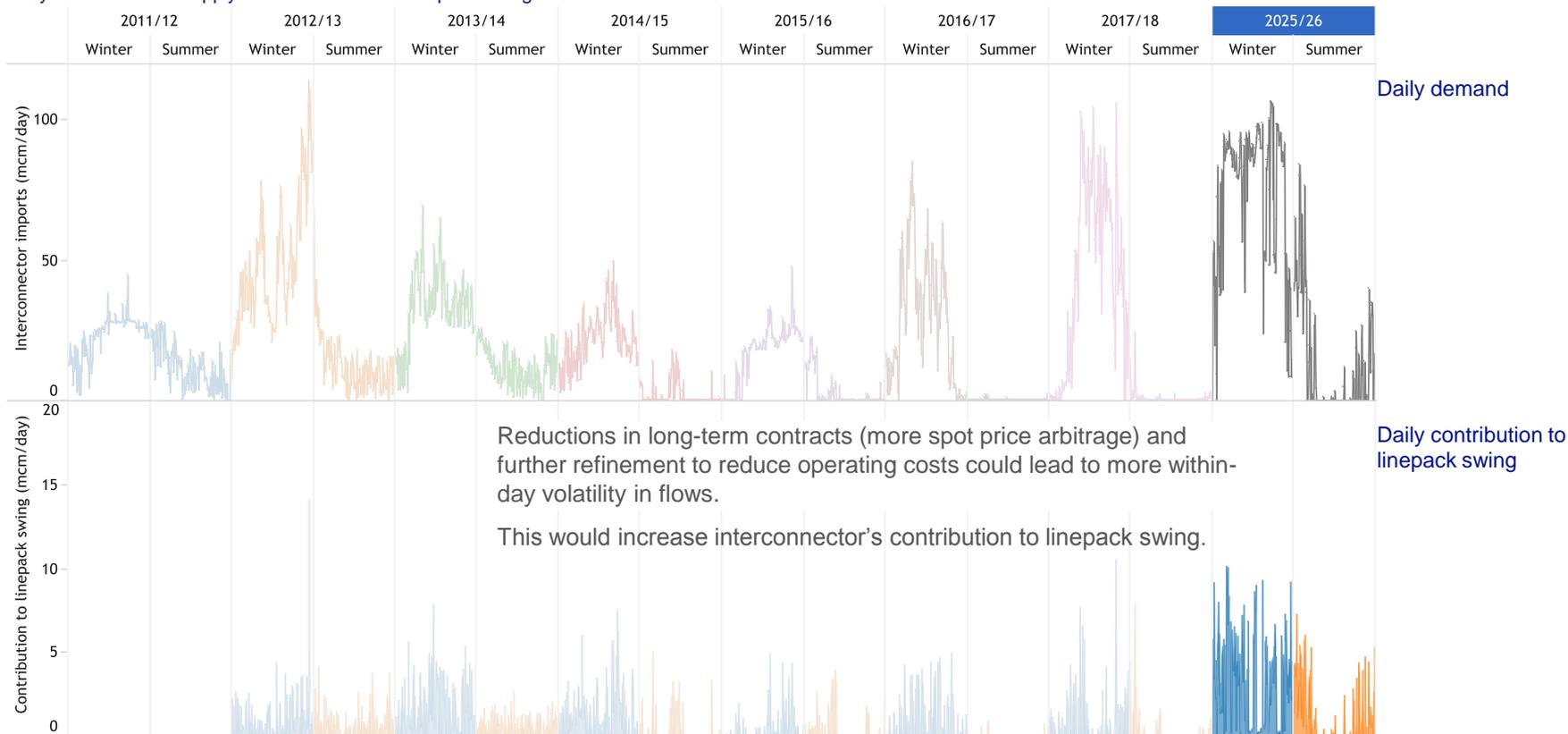
Daily UKCS supply and contribution to linepack swing



UKCS mainly supplies at a flat rate, meaning it doesn't contribute as significantly as other supply sources to linepack swing

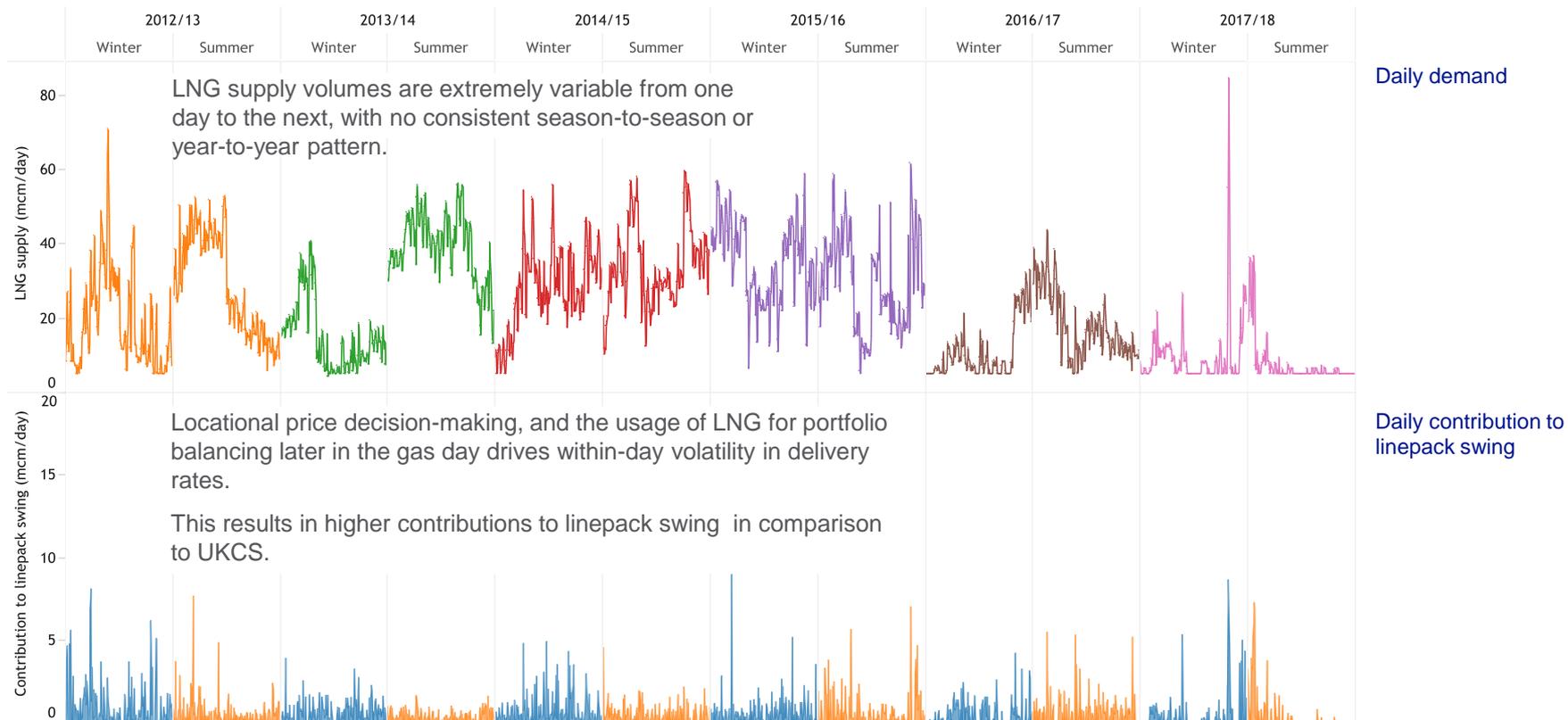
FORECAST: With interconnector imports expected to increase¹, the daily levels of supply-driven linepack swing that need to be accommodated (especially in winter) will increase.

Daily interconnector supply and contribution to linepack swing



Like interconnectors, LNG delivery rates are typically less constant than UKCS.

Daily LNG supply and daily contribution to linepack swing



2) Gas-fired power stations used increasingly for flexibility with more nuclear generation used

Daily gas-fired power station demand and contribution to linepack swing



3) Increase in embedded Gas power stations

- Increase in smaller gas power stations connected to distribution networks for supply
- This means a bigger with day demand shift for LDZ zones

Other factors considered can be viewed in the online GFOP report

Having now forecast how gas may be brought on and off the network in 2025, we are working to assess our physical network's ability to meet future within-day customer needs.

To strengthen the next step in our study we want you to challenge our future forecasts.



You can view our study at:
nationalgrid.com/gfop

Get in touch at
box.gfop@nationalgrid.com.

Upcoming release dates and instalment outputs

February 14th

Summary of how within-day flows have changed, and factors influencing behaviour

February 28th

Predict how within-day gas flows could change by 2025

March 28th

Assessment of our physical network's capability to continue to meet future within-day customer needs.

Gas System
Operator

05

Energy
Balancing

nationalgrid



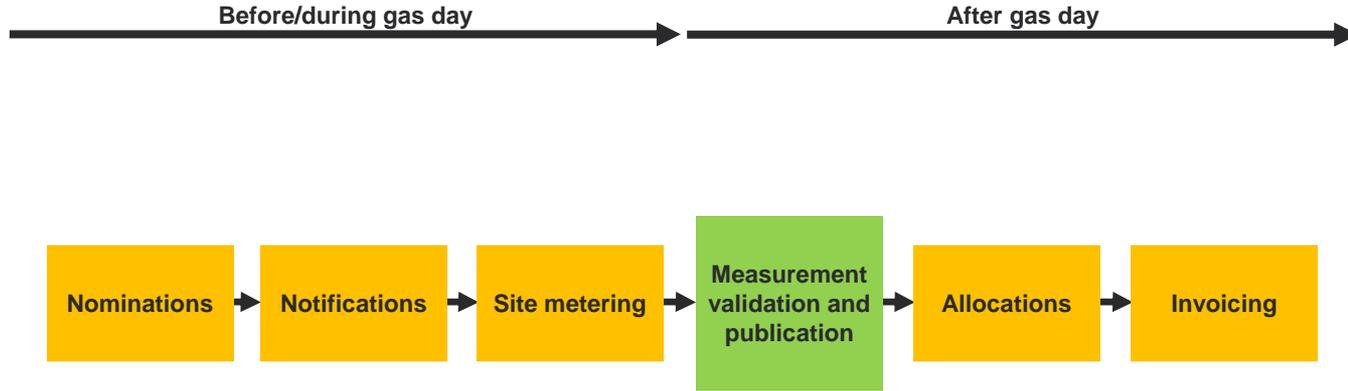
Publication of after the day measurement data

- Energy Balancing team - after day services
- Publication of measurements on gas day D+1
- Amendment of measurements between gas day D+1 and Closeout
- Post closeout reconciliation

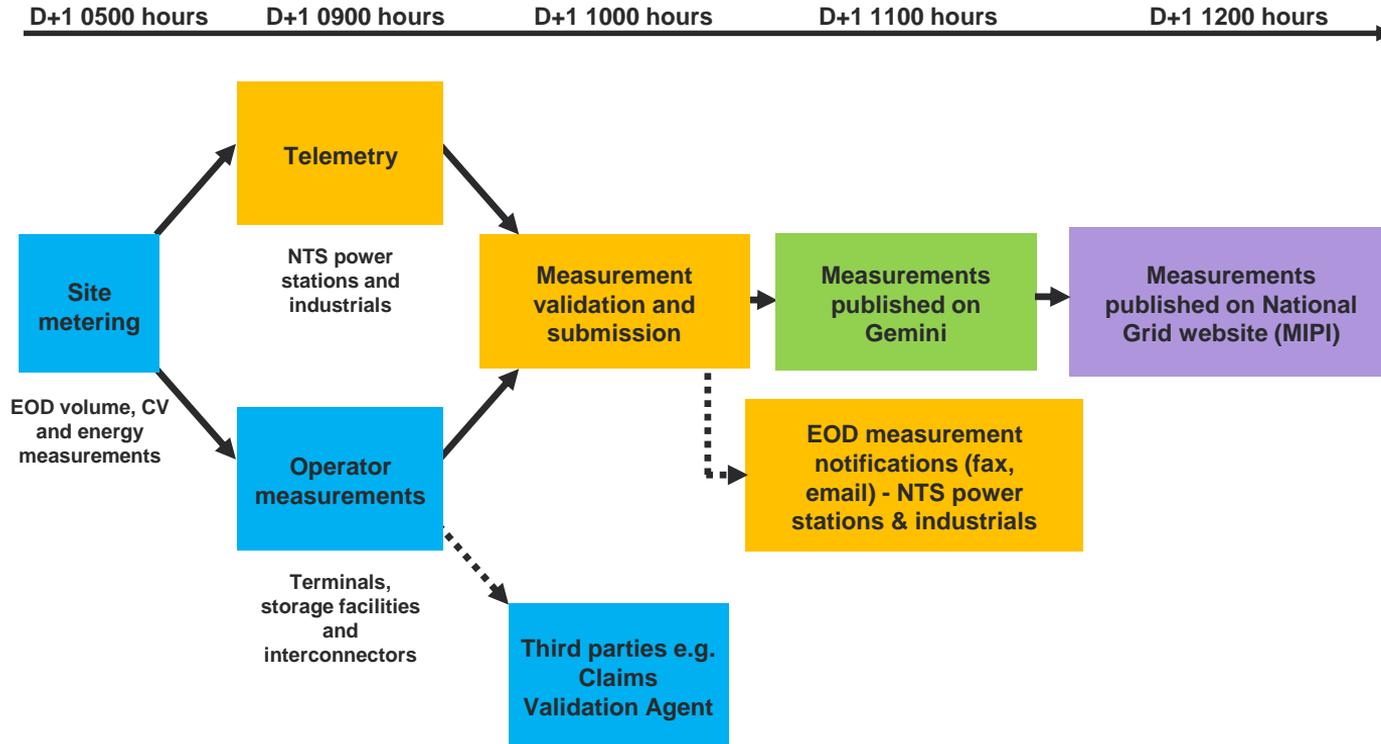
Energy Balancing team - after day services

- We validate and publish end of day measurements for all NTS entry and exit points.
- We calculate and publish calorific value (CV) billing data on behalf of the gas distribution network operators.
- We provide an allocation agent service for NTS exit points.
- We calculate, investigate the causes of and report on the Unaccounted for Gas (UAG) element of NTS shrinkage.
- We process and authorise post closeout data or meter error reconciliations for NTS exit points and authorise other NTS energy balancing invoice adjustments.
- We respond to customers' and stakeholders' queries and data requests.

Publication of measurements on gas day D+1



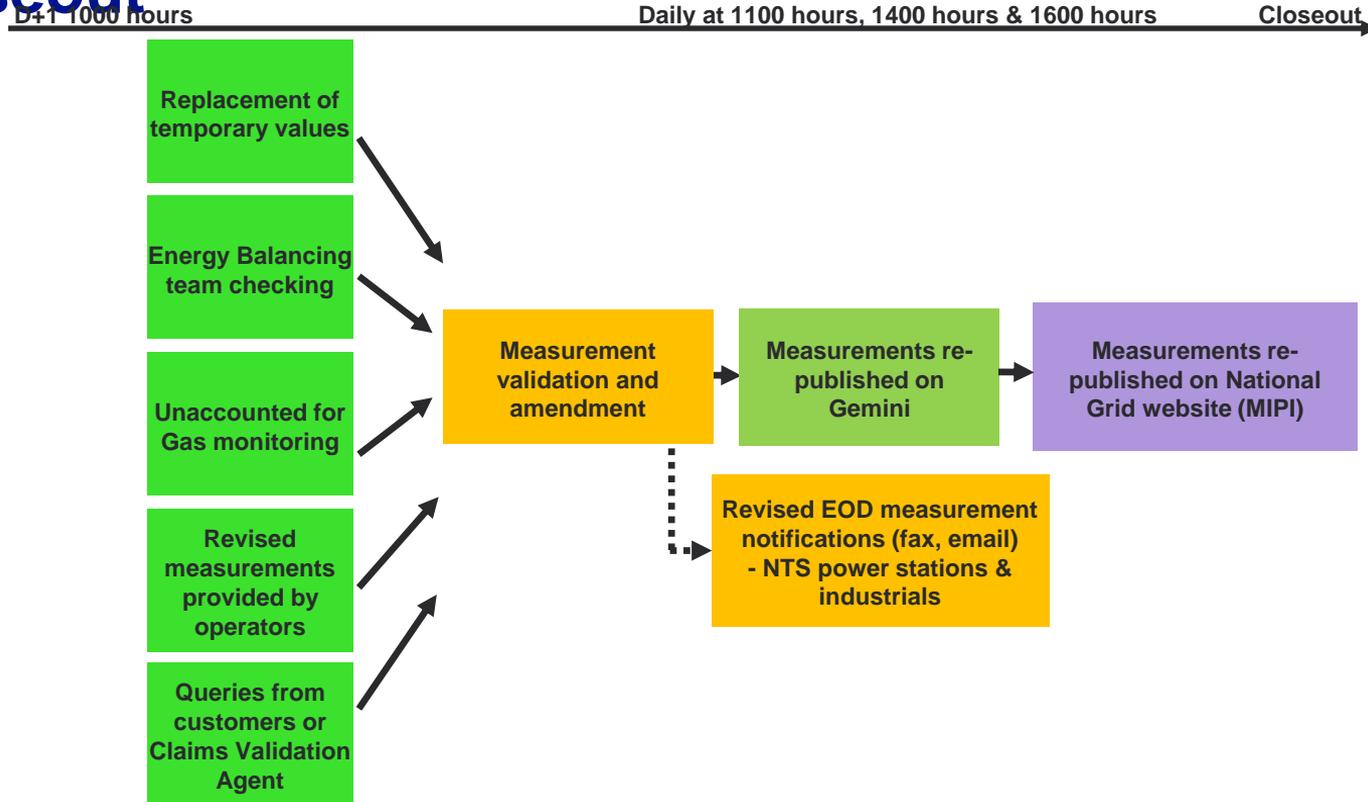
Publication of measurements on gas day D+1



Publication of measurements on gas day D+1

- Team works 7 days a week including bank holidays.
 - At least three members of the team are normally available on Mondays to Fridays
 - At least one member of the team is available at weekends
- Team aims to validate and enter end of day measurements for all NTS entry and exit points for gas day D into the Gas Control Suite (GCS) system by 1000 hours on D+1.
 - Deemed measurements entered for storage facilities and interconnectors
 - No measurement data passed to Gemini from GCS for interconnectors
- Some measurement data entered directly into Gemini or National Grid website.
- May have to enter temporary values, e.g. Gemini nominations, in the event that credible measurements are not available by 1000 hours on D+1.

Amendment of measurements between gas day D+1 and Closeout



Amendment of measurements between gas day D+1 and Closeout

D+1 1000 hours

Closeout

Closeout periods:

**D+1 calendar day
(1300 hours)**

- Interconnector Import
- Interconnector Export

**D+5 calendar days
(1545 hours)**

- NTS Power Stations
- NTS Industrials
- Storage Injection and Own Use Gas

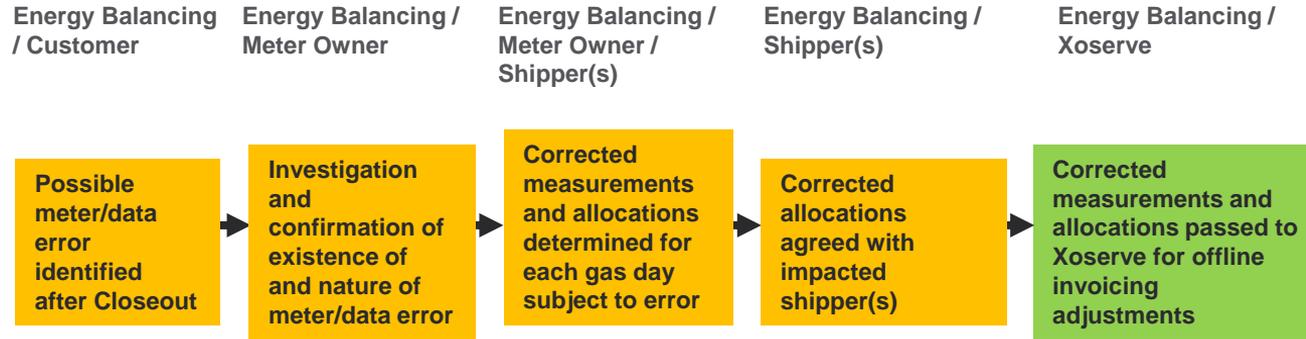
**M+15 business days
(1545 hours)**

- Terminals
- Storage Withdrawal

Amendment of measurements between gas day D+1 and Closeout

- Team's aim is to ensure a complete and accurate set of measurements for all NTS entry and exit points are published in Gemini by D+5.
- Team works with operators to obtain and validate measurements in event of telemetry issues.
 - Vast majority of NTS metering and CV measurement equipment is owned by third parties
 - Small number of NTS industrials make use of LDZ billing CVs
- Team undertake extensive checking to minimise the risk of input errors.
- Unaccounted for Gas monitoring used to highlight possible data or meter errors.
- Validation of measurements is undertaken using Gemini nominations and notifications provided by operators to the Gas National Control Centre.
- Occasionally operators provide updated measurements to Claims Validation Agent but omit to advise Energy Balancing team.

Post closeout reconciliation



Post closeout reconciliation

- Reconciliation exists to correct customer invoices in the event that incorrect measurements or allocations are published in the Gemini system at Closeout.
- Arise from either metering errors or errors in provision and/or processing of end of day measurements/allocations.
- Uniform Network Code only permits reconciliation of exit points post Closeout.
- Errors are defined as transporter or non-transporter errors.
- Reconciliation impacts commodity and energy balancing invoices.
- Reconciliation of errors up to 4 years old can be processed.
- Reconciliation is a joint exercise between meter owner, Energy Balancing team, impacted shippers and Xoserve.
- Corrected measurements/allocations are not published in Gemini.

Energy Balancing team contact details

Query		Email	Telephone Number
Pre-closeout measurements	Terminals, storage facilities and interconnectors	box.energybalancing@nationalgrid.com	+44 (0)1926 654641
	NTS power stations and industrials	box.uniquesites@nationalgrid.com	+44 (0)1926 654641
Post closeout measurements or reconciliation	NTS exit points	meterassurance@nationalgrid.com	+44 (0)1926 654135
Escalation point	David Lavender, Energy Balancing Team Leader	david.p.lavender@nationalgrid.com	+44 (0)1926 655212
	Cara Finn, Energy Balancing Manager	cara.finn @nationalgrid.com	+44 (0)1926 655830



Energy Balancing Invoice Team Activities

Energy Balancing Invoice Activities

Produce, validate & issue the Energy Balancing Invoice on behalf of National Grid each month to over 125 users.

Process post closeout adjustments authorised by National Grid & LDZ Networks relating to input points, output points and trades.

Issue a daily Trade invoice on behalf of National Grid to the Market Operator ICE Endex relating to the amount of gas bought or sold at system level to balance the system.

Process annual LDZ shrinkage values relating to Energy Balancing.

Respond to User, National Grid & LDZ Network queries and requests.

Energy Balancing Invoice Activities

Query		Email	Telephone Number
Queries & adjustment requests/authorisation	NTS & LDZ Input & Output points, Trade queries	Ebi.billing@Xoserve.com	+44 (0)121 623 2441 +44 (0)121 623 2589
Escalation points	James Sweeney, Energy Balancing Invoice Business Process Lead	James.J.Sweeney@Xoserve.com	+44 (0)121 623 2589
	Daniel Donovan, Business Process Manager	Daniel.L.Donovan@Xoserve.com	+44 (0)121 623 2699

Invoicing – Responding to feedback

- We understand invoicing is a current pain point from feedback
- Plan for this is currently in development
- Will communicate plans in the next few months
- Can discuss any further feedback in the breaks today

Gas System
Operator

06

Operational
Data
Enhancements

nationalgrid



Operational Data Enhancements Project

- (1) To deliver an industry enhancing IT solution which will maintain compliance to our current licence and contractual operational data requirements and facilitate the changing needs of the industry both now and into the future.**
- (2) To deliver an industry collaborative platform to enable:**
 - All industry players to feed into the change needed for transparency of gas operational data now and into the future so market needs can be anticipated for change.
 - To enable a mechanism for NG to provide transparency to the market in an efficient manner on on residual balancing decisions – e.g. ‘Day in brief.
 - To provide better visualisation of operational data.
 - To test concepts and gain feedback on requirements for new data both now and into the future.

Operational Data Enhancements Project

What good looks like for 2019/20:

- The industry clarifies what data is required:
 - NTS within day/after day
 - 3rd party data
- We understand who is using our data and why (the benefits across the industry).
- We understand how the industry uses our data- API's, reports, webpage views etc.
- We understand what data is not used and determine whether this is still relevant.
- Current and new operational data is made available on time and to agreed quality.
- Where availability of data is affected the industry are made aware of this.
- A solution is implemented such that when new data requirements are agreed these can be implemented efficiently (cost and time).
- Industry have developed the suite of operational data which will enable market players to become more efficient and hence pass on savings to end consumers

Gas System
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Overview of trial collaboration site

nationalgrid



What has happened to date - collaboration site

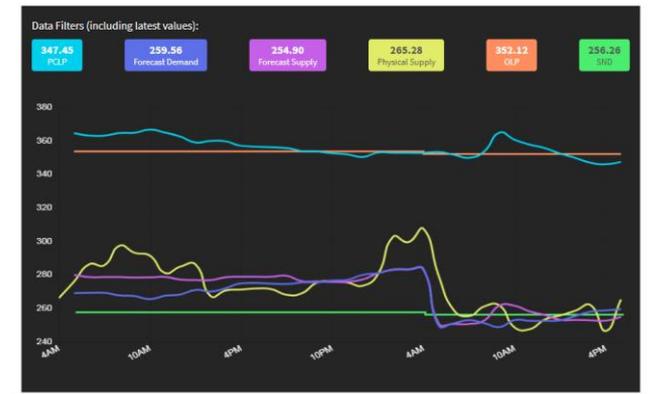
- **Prototype was launched in Feb.**
- **Over 180 customer signed up.**
- **Voting and feedback on value of data.**
- **Discussion board**
- **Visualisation**
- **Test of requirements for requested data**
 - Demand
 - Trading
 - Day in Brief

Brand new feature! We have now launched a trial version of **Instantaneous Demand data**. This is X a first attempt at introducing new data which is currently not available via MIP. We're planning to update the data several times a day every day until Wednesday 13th February. Do send us your feedback using the Feedback tab in the lower right of your screen.

Gas Operational Data Community

National Grid's data services are evolving and we need your help to transform them in ways that better meet your needs to create efficiencies in your commercial and physical operations which can drive value for the end consumer. This community will be a place to share your own ideas, hear about the ideas we already have, and join the conversation with the entire Gas community.

[Register for the Community](#) [Login to the Community](#) [Feedback](#)



What is next- collaboration site

- **Enduring platform to be launched later this month.**
- **All signed up users to prototype will be contacted and transferred over.**
- **Need to gain further insight of value of new within day data & more insight across all new after the day data requests.**
- **Will aim to present more transparency on 'day in brief' when requested.**
- **Will aim to test appetite and value of more within day visualisation.**
- **Will aim to present for more trial live data for discussion**

New NTS data requirements- current position

- **Instantaneous demand**

- Agreed as a priority for implementation at a category level to replicate frequency of supply data.

- **Trading data**

- Within day

- Not minded to provide at this point should form part of wider balancing discussions.
- Please provide further evidence if you believe this should be implemented sooner.

- After the day

- Agreed as a priority for implementation with respect to transparency of hour bar volume traded rather than within a 6 hour window.

- **Day in Brief (video or article following out of the ordinary events)**

- Has been voted as a preferred new service
- Please provide evidence of the value of NG providing this insight to supplement existing data sets.

- **Gas Quality actuals (with day)**

- Please provide feedback on components of GQ deemed useful (see GQ slides)
- Please provide feedback on value to your organisation and end consumers.

New NTS data requirements- current position

- **Target linepack**

- ‘NG is not minded to provide a specific daily target linepack figure to the market. NG do not balance to a specific number and the balancing decisions made by NG are as a result of many different factors. The drivers to the majority of balancing decisions can be found through the existing within day data set or the newly requested data set (e.g. instantaneous supply & demand, PCLP, PCLP linepack swing, OLP). NG also aim to provide more visualisation of the journey across Gas Days e.g. PCLP, OL, linepack swing and also provide a ‘day in brief’ following an unusual day hence this will aid further transparency and also aid visibility to predict balancing decisions.’

- **PCLP**

- Please provide feedback on value of receiving this more frequently than once an hour.

- **Market Price data (within day)- SAP; SMPSB, SMPS, 7 day average**

- Please provide feedback on value of receiving this via the NG platform within day.

- **Pressure forecasts – over an above entry terminal week ahead**

- This would require substantial analysis and NG currently understanding how this could be facilitated and funded.

Interim Solutions

- **Interim solutions have been put in place before enduring solutions are implemented**
- **Operational Data site not publishing instantaneous demand data (posted once a day at the moment, but this will become more regular in the enduring implementation)**
- **After the day trade information will be posted for each day trades were carried out**
- **These can both be found in supplementary reports**

Supplementary reports

Pre-emergency Commercial Tools (1)

Daily storage and LNG operator information (1)

Calculated linepack utilisation (1)

Pressure Forecasts (2)

Storage and LNG operator information (8)

Contingency documents (0)

Other reports (8)

Trial Instantaneous Demand Info (2)

Trial After the Day Trading Data (0)

Trial Instantaneous Demand Info

Name ^

 Trial Instantaneous Demand data February

 Trial Instantaneous Demand data March

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Post Day Data Workshop

4 April
London

nationalgrid



MIPI Post Day Data – Situation Today

Data Inconsistency

- Reporting lag times and inconsistencies between reports.
- Report totals don't always match the components
- Some reports publish volumetric data, others publish energy and some publish both.

Data quality

- Historic Data errors

Additional Post Day Data

NTS

?

Third Party

- Additional DN Data
- Hourly SAP, SMP-Buy and SMP-Sell data

Redundant Data

- We publish 13000 different data items per day, many of which don't appear to be utilised by users.

Workshop Objectives for 4 April

What good looks like for Post Day Data

- This workshop will focus on **the Post Day** data requirements, we have already obtained extensive feedback about pre-day/real time data. (E.g. Real Time Demand data)
- We want to better understand how the post day data we publish, is used for by our customers.
- We want to understand how you receive this data (Pull the Data via API, Read the Reports, utilise a third party service such as Bloomberg)
- We want to understand where we could improve this service and what are your priorities.
- We want to discuss possible data additions but also try to identify redundant data we don't need to publish in future
- We want to know if we should publish more third party supply and demand data (Such as UIG) and provide a single platform for this data.

We will provide a more detailed set of slides prior to the workshop please get in contact if you or your colleagues would like to attend

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Gas Quality

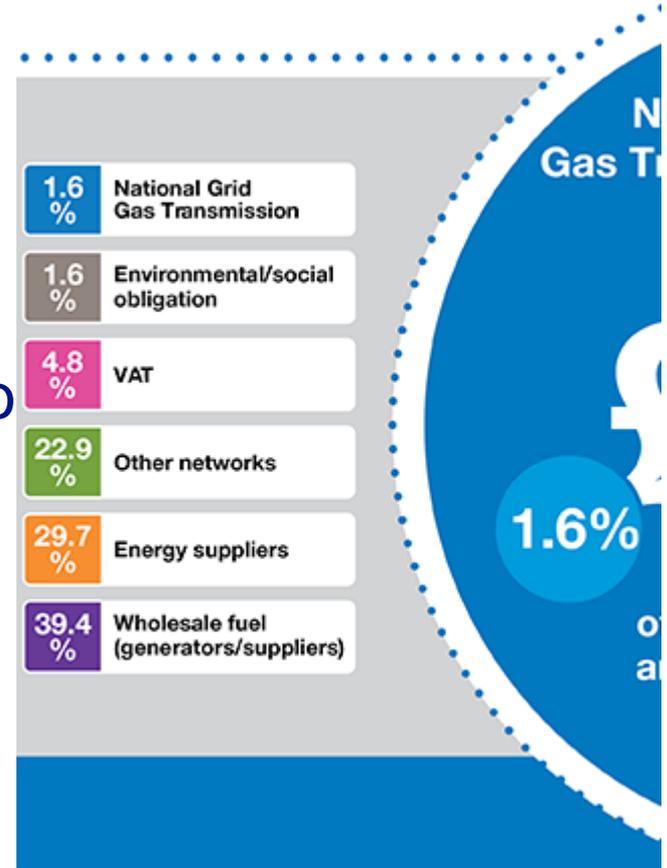
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Purpose

To deliver background information on which **GQ parameters** we routinely **measure**, their **location** and potential services **we could offer** with respect to GQ.

There is a **cost** associated with **any service** we offer, therefore we need justify an expenditure as providing a **benefit to the end consumer**.



Legal and Contractual Parameters

Gas Safety Management Regulations, GS(M)R

Regulation 8: No person shall convey gas in a network unless the gas conforms with the requirements specified in Part I of Schedule 3.

Hydrogen Sulphide
< 5mg/m³

Total Sulphur
< 50mg/m³

Hydrogen
≤ 0.1 mol. %

Oxygen
≤ 0.2 mol. %

Dew Points
HCD: -2 °C, H₂O: -10 °C

Wobbe No.
≥ 47.20 ≤ 51.41 MJ/m³

ICF
≤ 0.48

SI
≤ 0.6

Measured at all Entry points
Measured based on RA

Legal and Contractual Parameters

Contractual Parameters

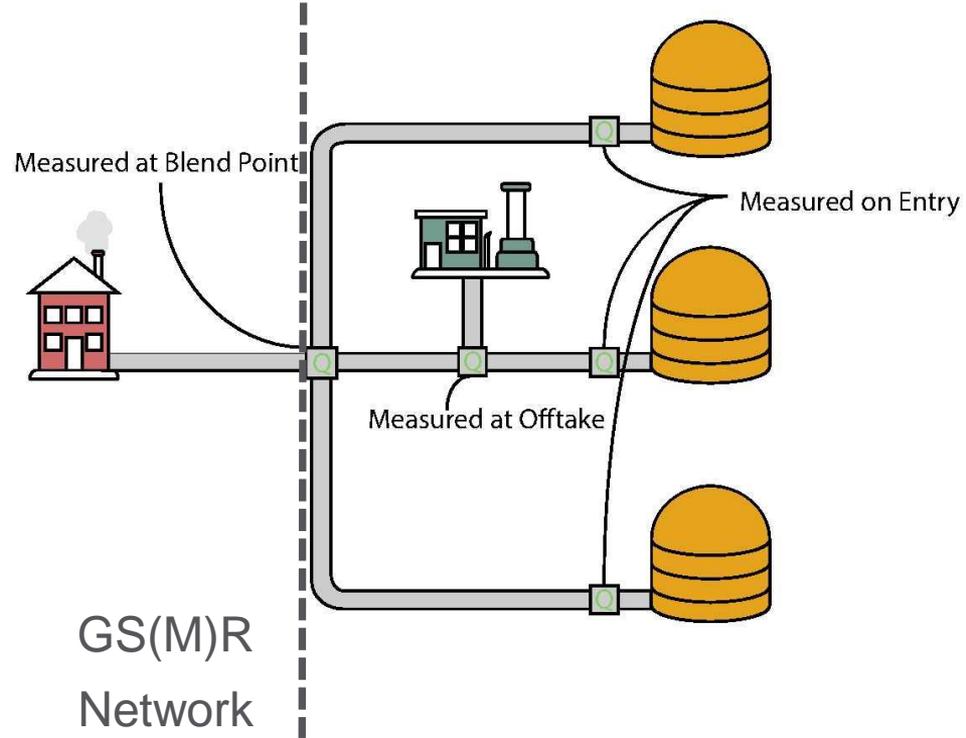
As stated in our Storage, Entry and Interconnector agreements (SCA, NEA). Typically in line with our Ten Year Statement.

Including:

- CO₂
- N₂
- Ethane content (where applicable)
- Temperature
- CV

Measurement Points

- Full suite of measurements at all entry points (Terminals, Storage and Interconnectors).
- Full suite of measurements at all blend points – the start of the GS(M)R network
- GQ is also measured at exit points, equipment owned and operated by connected customers
- Network GQ only tracked by exception in the event of a GQ breach. This is inferred, not measured



Some common questions....

- Can we forecast and/or track GQ throughout the network?
- Can you make this data available?
Confidentiality?

What do we need as National Grid

We don't really understand what parameters you would find useful, how useful these parameters would be and what benefit they would be to end consumers

To progress with an initial service we need to collate this evidence and judge if there will be a measurable benefit for the expenditure required.

Discussion

We want to hear about what's important to you. This is your discussion board to collaborate across the industry. The more topics suggested and the more you can all glean. This in turn increases the ability of the whole community to generate better outcomes for our end consumers. Talk about this and get involved in shaping the future.

* Please remember that the discussion board and other interactive messaging facilities is hosted in order to facilitate collaboration across the industry. This board and interactive messaging facilities should not be used to post abusive content. All posts on the discussion board and interactive messaging facilities are monitored by National Grid Gas PLC and it reserves the right to delete any posts that breaches the market rules such as REMIT to

More Insight Needed For Value To Industry Of Within Day Data Sets

We do still require feedback on the benefits of not currently receiving and benefits of

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07

Signposting of Information

nationalgrid



New Gemini Nominations versus Capacity Report (Within Day and Day Ahead)

- **A new Gemini report showing Nominations versus Capacity will be incorporated into the system changes being delivered to support the GB Charging obligations**
- **Available from September 2019 the report will show a Shippers Capacity Entitlement and the Shippers Nomination Position at Entry and Exit point level for the Within Day and Day Ahead period**
- **The report will also show the utilisation of Nominations against Capacity purchased, for both entry and exit points, and will include a download to Excel Facility.**
- **Shippers will be able to manage their over-run position in a single place within day.**
- **This report will help shippers to manage their within day utilisation position.**

Capacity FAQs Document

Following on from the February Ops forum where a FAQ document for capacity was suggested, a document has now been put together to answer some of the more commonly asked questions.

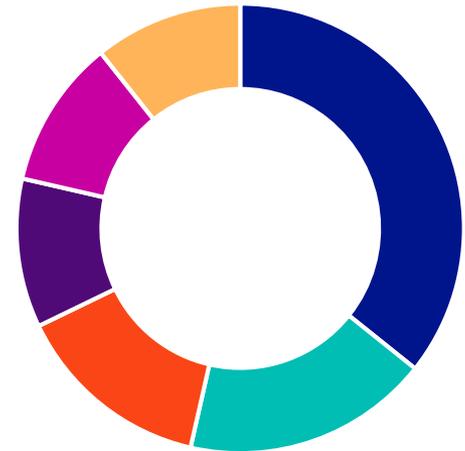
The capacity team currently receive 25+ queries a month with the majority around the same few areas and these questions form the basis of the document

The FAQ document will be published on the capacity home page <https://www.nationalgridgas.com/capacity> by the end of this week alongside the current 'Capacity guidelines for customers' document

Please feel free to provide feedback on the document, including any suggestions for different questions, either via a phone call on 01926 654057 or via the box account capacityauctions@nationalgrid.com

Queries since the last forum

- Operational Data is comfortably the biggest query category. Majority of queries are around how to find/interpretation of data with some questions about reasons for values
- Metering queries were common – e.g. readings/ discrepancies
- Gas Quality was split between process and issues
- Codes/Contractual information e.g. interpretation of UNC rules, contract agreements



- Data
- Metering
- Gas Quality
- Information requests
- Third Party
- Processes

Query Management

We are managing all queries through KPIs. Do current targets work?

- 1 working day to acknowledge query
- 5 working days to close out
- Some requests may require longer e.g. analysis needed, so aim to sustain above 80%
- Query reference numbers

NO. QUERIES RECEIVED EACH WEEK		% CLOSED IN SLA (5 WORKING DAYS)		WHY ARE QUERIES BEING RAISED?	
WEEK 1	WEEK 2	WEEK 1	WEEK 2		
20	15	82 %	85 %		
WEEK 3	WEEK 4	WEEK 3	WEEK 4		
%	%	%	%		
20> / 15-19 / <14		90%> / 80-89% / <79%			
% QUERIES ACKNOWLEDGED (WITHIN 24 HRS)		% QUERIES WITH ASSOCIATED TASK (CRM)		NO. QUERIES STILL OPEN	
WEEK 1	WEEK 2	WEEK 1	WEEK 2	LATEST WEEK	IN TOTAL
80 %	100 %	71 %	22 %	2	16
WEEK 3	WEEK 4	WEEK 3	WEEK 4		
%	%	%	%		
100% / <99%		100% / <99%		Performance against previous week	Performance against previous week

Maintenance Plans 2019

Summer Maintenance Plan will go live on 1st April 2019

- In Line inspections planned for the year
- Pipeline Isolations and shutdowns
- Compressor station maintenance
- ASEP (Aggregate System Entry Point) flow capability

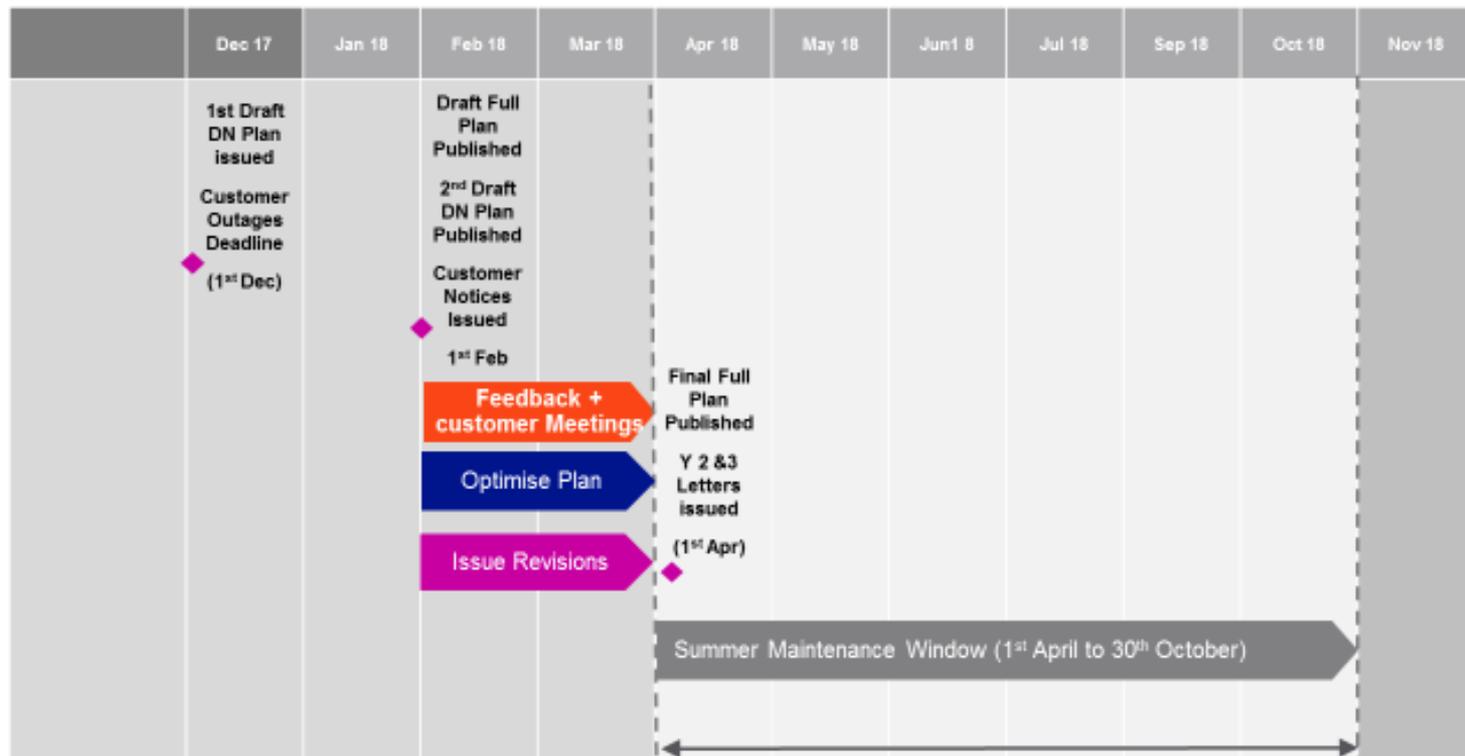
Planned work is split on a monthly basis – exact dates are not included

<https://www.nationalgridgas.com/data-and-operations/maintenance>

National Grid

Compressor Station Outages	2019						
	Apr	May	Jun	Jul	Aug	Sep	Q4
Aberdeen							
Alrewas							
Avonbridge 1							
Avonbridge 2							
Aylesbury							
Bishop Auckland							
Carnforth							
Cambridge							
Chelmsford							
Churchover							
Diss							
Felindre							
Hatton							
Huntingdon							
Kings Lynn							
Kirriemuir							
Lockerley							
Moffat							
Nether Kellet							
Peterborough							
Warrington							
Wisbech							
Wooler							
Wormington							

Yearly Maintenance Planning Programme



UNC Modifications

0662 – Revenue Recovery at Combined ASEPs

(Report to Panel 18 July 2019)

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

(Report to Panel 18 April 2019)

0669R - Review of the Gas Deficit Warning (GDW) and Margins Notice (MN) Arrangements

(Report to Panel 16 May 2019)

0671 – New Capacity Exchange process at NTS exit points for capacity below baseline

(Report to Panel 18 April 2019)

0675S – Enabling changed to the BBL Interconnection Agreement to facilitated physical reverse flow

(Report to Panel 21 March 2019)

0680S – UNC Changes as a Consequence of ‘no deal’ United Kingdom Exit from the European Union

(Report to Panel 21 March 2019)

Gas
Transmission

Gas Transmission RIIO 2 topics

nationalgrid



Gas Transmission RIIO 2 – key topics

Network Capability

We are developing a measurable definition to articulate the capability of the Gas Transmission Network. Once we are confident it works for Ofgem, stakeholders and us, we will play back stakeholders needs of the network using this common language to agree current and future needs.

Here's a [link](#) to the slides.

Access Review

We would like to understand your views regarding revised arrangements for accessing unsold capacities on entry and exit, and where the focus for change should be.

This is independent of any RIIO ask, there is merit in reviewing arrangements in any case

Here's a [link](#) to the slides

If you would like to get involved in any of these topics, please contact Dawn.McCarroll@nationalgrid.com

Gas Transmission RIIO 2 – key topics

Shaping the South East energy network of the future

Due to aging equipment and environmental legislation, 7 out of 8 compressors will be non-compliant by 2030. We need to understand stakeholders' needs for that area of the network now and in the future to ensure we deliver the right solution. We'll be engaging on this in the coming months.

Here's a [link](#) to the slides.

Shaping the Bacton Strategy

We have undertaken a fundamental review of stakeholders' needs of the Bacton Terminal now and in the future. Having initially shared a number of options, we're now developing detailed costings and a CBA for the two preferred options. These will be shared and discussed with interested stakeholders at a webinar on 28th March.

Here's a [link](#) to the slides.

If you would like to get involved in any of these topics, please contact Dawn.McCarroll@nationalgrid.com

New Xoserve Website

New Xoserve website is now live

You can access a recording of the Walkthrough Webex to see a demonstration of the new features and layout

Access here:

<https://www.xoserve.com/news/new-xoservecom-walkthrough>



New Xoserve.com Walkthrough

Published on 17th DEC 2018

On Thursday 13th December, we held a Website Walkthrough Webex, where we showcased the designs and features of the new Xoserve.com.

If you were unable to listen in to the WebEx, or if you would like to share it with your colleagues, a recording is available [here](#).

Development of Xoserve.com will not stop once it's launched in the new year. We will be using the feedback we receive through our Customer Advocates, as well as direct feedback to contactxoserve@xoserve.com. We'll use it to maintain and improve the site content, structure and overall experience of our website.

We want to gather your views on what future changes and features you would like to be made to the website. An initial list of upcoming features is available [here](#).

Query Surgery and Next Forum

The Next Operational Forum will take place on
Thursday 18th April

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



national**grid**