

Gas Operational Forum



27 March 2018 09:30AM

Radisson Blu Hotel, 130 Tottenham Court Road, London

Health & Safety Brief

No fire alarm testing is planned for today.

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

At the rear of the hotel by Fitzroy Court



Typical Ops Forum Agenda

- 09:30 **Previous Ops Forum actions and feedback since last forum**
Did you see & are you aware of?
- 09:40 **Operational overview**
- Supply & demand
 - Interesting days (Gemini issues B2B etc & lessons learnt)
- 10:10 **Customer Requested topics**
- UIG
 - Update on MIPI data impacts at Rough
 - Charging Review Overview (to be covered in key mods)
- 10:30 **Break**
- 10:45 **Customer Feedback**
- Future Compressor investment on the NTS.
- 11:05 **Sign posting topics of interest**
- Future of Gas (FOG)
 - Key UNC mods
- 11:20 **Customer Feedback required**
- Sustaining and improving Gemini (re-platforming)
 - Future Market Services & Gemini system
- 11:50 **Close & summary of any questions received**
- 11:50 –12:15 **Optional Query surgery for our Gas Customers & Stakeholders**

Next Forum dates

- 26 April - London
- 28 June - Warwick
- 27 September - London
- 25 October - London
- 29 November - London

Today's Agenda

1 – Context setting

- Scope of the day
- Role reminder

9:30-9:45



2 –Operational overview

- Supply and demand
- Operational observations
- Balancing / commercial tools
- Communications

9:45-10:30



3 - Discussion

- Questions
- Group feedback

10:45-12:00



Break

Communications

Please comment on the effectiveness of National Grid's communications

Active Notification System (ANS) – An electronic means for National Grid to communicate with its customers. Messages are directly relayed to a relevant customers device and are published on MIPI: Prevailing View.

Market Information Provision Initiative (MIPI) – The platform where National Grid publishes amongst other things, live operational data.

Telephone calls – National Grid's direct communication with the distribution networks, directly connected customers and upstream Terminals and Shippers

Faxes/Email – National Grid's incident management processes require a number of forms and instructions to be distributed to relevant customers by facsimile or email.

1

Operational Data and Systems

Please comment on the effectiveness of the systems employed by National Grid and the quality of published Operational Data

On-the-day Commodities Market (OCM) – The market that National Grid may use to trade energy on a locational and national basis. Required for the role of residual balancer.

GEMINI – An XOSERVE managed platform used by Shippers to buy and trade entry and exit capacity, nominate energy on and off the network, and trade gas.

MIPI – The platform National Grid uses to publish its operational data, including (but not limited to): supply and demand figures (both forecasts and instantaneous); [linepack](#) information; demand forecasts; storage stock levels; gas price information.

2

Tools on the Day

Please comment on the effectiveness of the tools used by National Grid to manage a supply/demand imbalance

- **Enforcement of business rules** – In an unconstrained system business rules are not enforced allowing short-term flexibility to our customers. In a constrained system National Grid may reject OPNs if they are in breach of the terms of a customers [NEXa](#) for reasons including, but not limited to: lead times; % change in offtake rate; ramp rates.
- **Firm Exit Capacity Restriction** – A term used to describe the non-release of firm exit capacity in the within-day daily exit capacity (WDDNEX) auctions. National Grid are not obligated to release unsold firm capacity should a Network constraint be predicted.
- **Requests for trades** – National Grid's role as the residual balancer of the gas network allows it to take energy balancing trades on the 'On-the-day Commodities Market' (OCM) to influence the matching of supply and demand. Should there be limited market liquidity, National Grid may request bids be placed for either locational (at a specific entry of exit point) or national trades.

3

We will discuss reflections and respond to questions in the last part of the session

Agenda

1 – Context setting

- Scope of the day
- Role reminder

2 –Operational overview

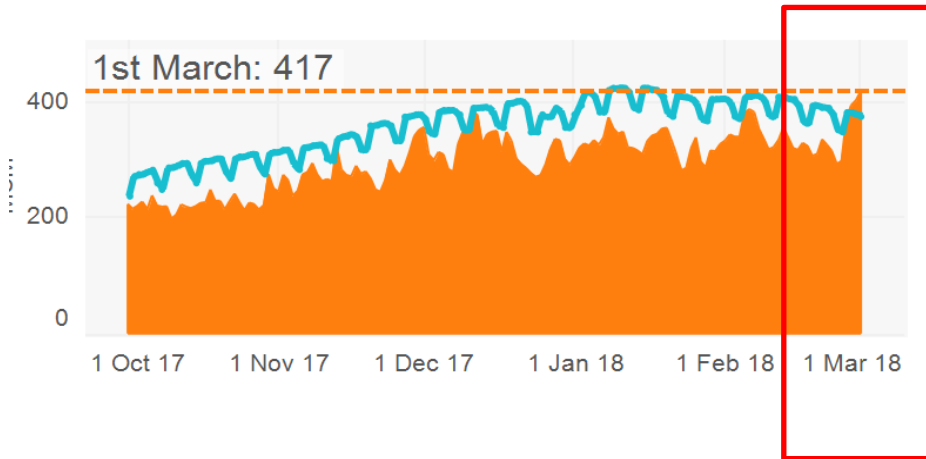
- Supply and demand
- Operational observations
- Balancing / commercial tools
- Communications

3 - Discussion

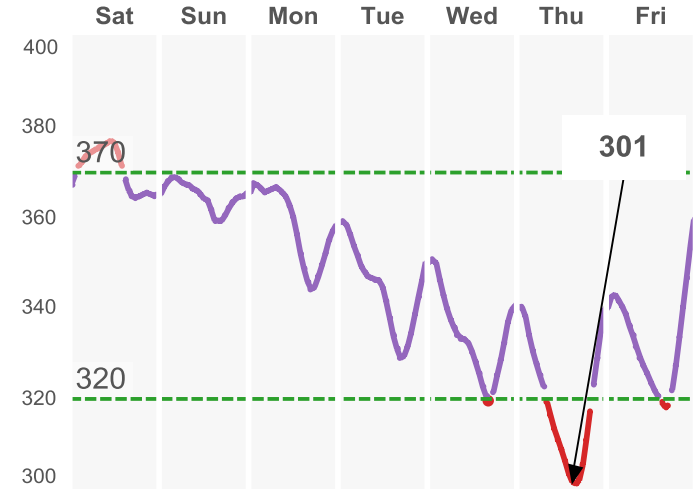
- Questions
- Group feedback

↑
Break

Scope of today – 24th Feb – 2nd Mar



Instantaneous NTS Linepack



Important to put 1st March in context

Scope of today – focus on our role



**Provision of 1:20 Network Capability
National Transmission System**

Execution of a range of tools across short & long-term timescales

Physical Balancing Tools

**Commercial Balancing
Tools**

**Market Information
Provision**

Scope of today – focus on our role



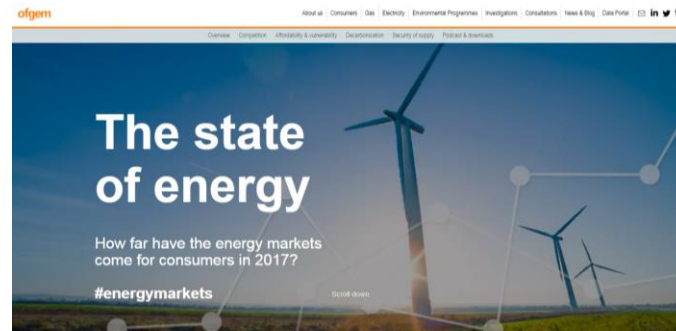
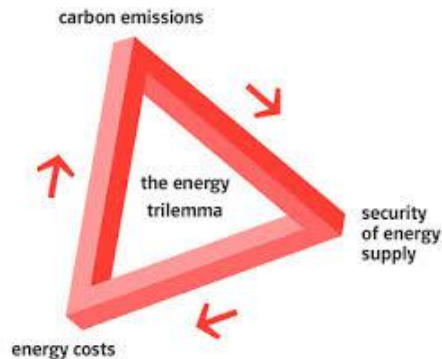
Provision of 1:20 Network Capability
National Transmission System

Execution of a range of tools across short & long-term timescales

Physical Balancing Tools

Commercial Balancing
Tools

Market Information
Provision




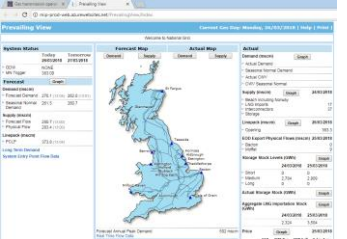
Considerations through the narrative

| | | | |
|---------------------------------------|---|--|---|
| 1 – Key terminology | Linepack: <ul style="list-style-type: none">• Projected Closing• Instantaneous• Forecast• Swing | Balance: <ul style="list-style-type: none">• Instantaneous• End Of Day | Tool utilisation: <ul style="list-style-type: none">• Trading• 'Rules on'• Scaleback• GDW |
| 2 – Operational considerations | | | |
| 3 – Talking points to follow | | | |

Considerations through the narrative

| | | | |
|---------------------------------------|---|--|---|
| 1 – Key terminology | Linepack: <ul style="list-style-type: none">• Projected Closing• Instantaneous• Forecast• Swing | Balance: <ul style="list-style-type: none">• Instantaneous• End Of Day | Tool utilisation: <ul style="list-style-type: none">• Trading• ‘Rules on’• Scaleback• GDW |
| 2 – Operational considerations | Forecasts Instantaneous Vs EOD Multitude of scenarios | | Availability of information Market responsiveness |
| 3 – Talking points to follow | | | |

Considerations through the narrative

| <p>1 – Key terminology</p> | <p>Linepack:</p> <ul style="list-style-type: none"> • Projected Closing • Instantaneous • Forecast • Swing | <p>Balance:</p> <ul style="list-style-type: none"> • Instantaneous • End Of Day | <p>Tool utilisation:</p> <ul style="list-style-type: none"> • Trading • ‘Rules on’ • Scaleback • GDW | | | | | | | | | | | | |
|---|---|---|--|------------------------------|------------------------------|------------------|-------------------|--|---|---|---|---|--|--|--|
| <p>2 – Operational considerations</p> | <p>Forecasts</p> <p>Instantaneous Vs EOD</p> <p>Multitude of scenarios</p> | | <p>Availability of information</p> <p>Market responsiveness</p> | | | | | | | | | | | | |
| <p>3 – Talking points to follow</p> |  |  | <table border="1"> <thead> <tr> <th>Operational tools (internal)</th> <th>Operational tools (external)</th> <th>Commercial tools</th> <th>Network Integrity</th> </tr> </thead> <tbody> <tr> <td>Reconfigure Network Optimise Compressor Fleet Manage Outages</td> <td>Agree Pressures (Distribution Network Operator) Flow Swaps (Distribution Network Operator) Enforce Contractual Offtake Rules</td> <td>Scaleback Capacity (Energy Storage & Gas) Restrict Daily Capacity Locations Energy Actions Capacity Buybacks Offtake Flow Reductions Instate Constraint Management Agreements</td> <td>Operating Margins Terminal Flow Advice (TFA) (Entry) Critical Transportation Constraint Gas Deficit Emergency</td> </tr> <tr> <td colspan="4">Information Provision (MIP) (Market Information Processor Initiated) / Website / Gensite / ANS (Active Notification System)</td> </tr> </tbody> </table> | Operational tools (internal) | Operational tools (external) | Commercial tools | Network Integrity | Reconfigure Network Optimise Compressor Fleet Manage Outages | Agree Pressures (Distribution Network Operator) Flow Swaps (Distribution Network Operator) Enforce Contractual Offtake Rules | Scaleback Capacity (Energy Storage & Gas) Restrict Daily Capacity Locations Energy Actions Capacity Buybacks Offtake Flow Reductions Instate Constraint Management Agreements | Operating Margins Terminal Flow Advice (TFA) (Entry) Critical Transportation Constraint Gas Deficit Emergency | Information Provision (MIP) (Market Information Processor Initiated) / Website / Gensite / ANS (Active Notification System) | | | |
| Operational tools (internal) | Operational tools (external) | Commercial tools | Network Integrity | | | | | | | | | | | | |
| Reconfigure Network Optimise Compressor Fleet Manage Outages | Agree Pressures (Distribution Network Operator) Flow Swaps (Distribution Network Operator) Enforce Contractual Offtake Rules | Scaleback Capacity (Energy Storage & Gas) Restrict Daily Capacity Locations Energy Actions Capacity Buybacks Offtake Flow Reductions Instate Constraint Management Agreements | Operating Margins Terminal Flow Advice (TFA) (Entry) Critical Transportation Constraint Gas Deficit Emergency | | | | | | | | | | | | |
| Information Provision (MIP) (Market Information Processor Initiated) / Website / Gensite / ANS (Active Notification System) | | | | | | | | | | | | | | | |

Agenda

1 – Context setting

- Scope of the day
- Role reminder



2 –Operational overview

- Supply and demand
- Operational observations
- Balancing / commercial tools
- Communications



3 - Discussion

- Questions
- Group feedback

1st & 2nd March 2018 Cold Snap

Key Supply & Demand Obligations

Shipper

**Shipper obligation Licence to meet 1:20
Incentivised to balance portfolio**

National Grid

**Provision of 1:20 Network Capability
National Transmission System**

Execution of a range of tools across short & long-term timescales

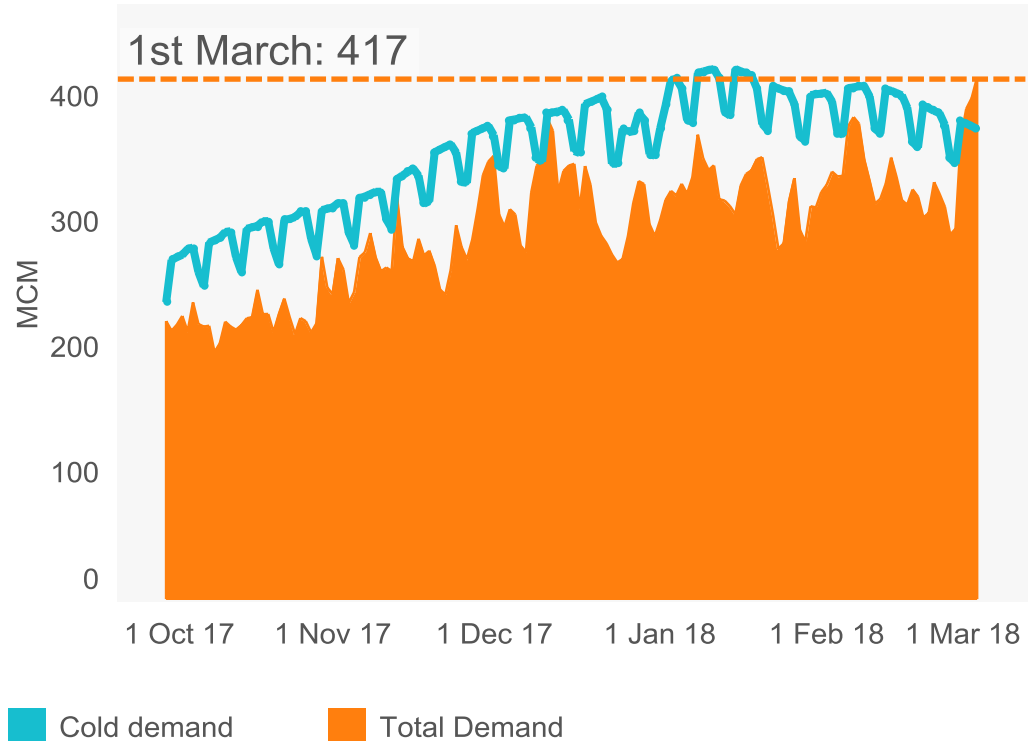
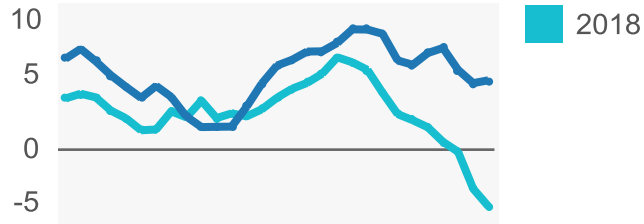
Physical Balancing Tools

**Commercial Balancing
Tools**

**Market Information
Provision**

Unseasonably cold weather and high Demand

1st Feb - 1st Mar Daily CWV



**Temperature
dropped**
and
**Demand increased
significantly**

peaking on the 1st March

Summary of the week

Through the week

Linepack depleted gradually

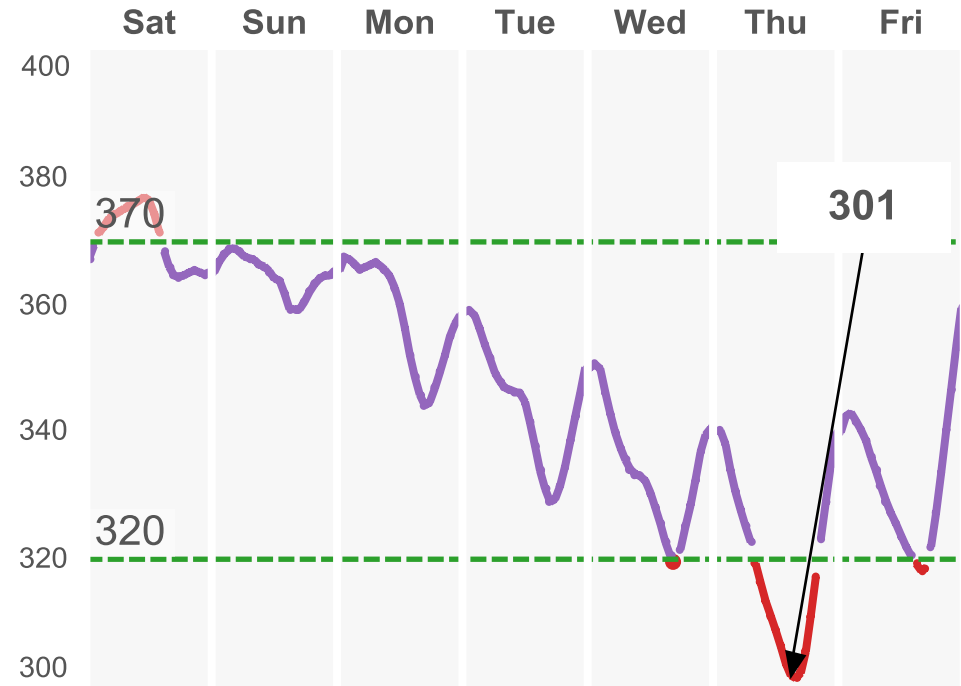
before

Recovering on Friday

Thursday

- **GDW**
- **Off-peak scale back**
- **OM utilisation**

Instantaneous NTS Linepack



Beginning of week commencing 26th Feb

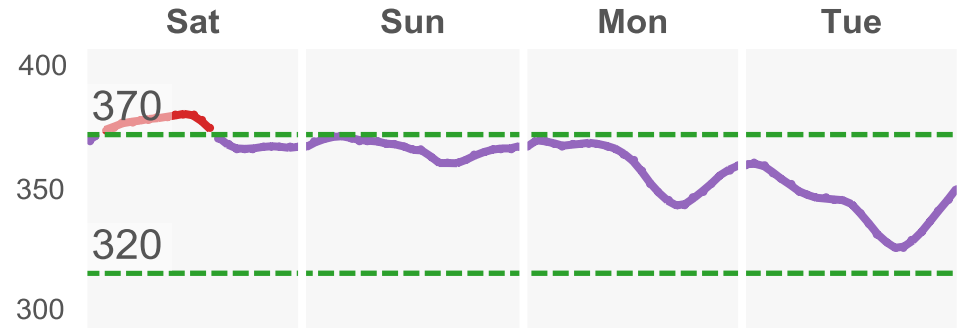
Despite

Multiple trades on Tuesday

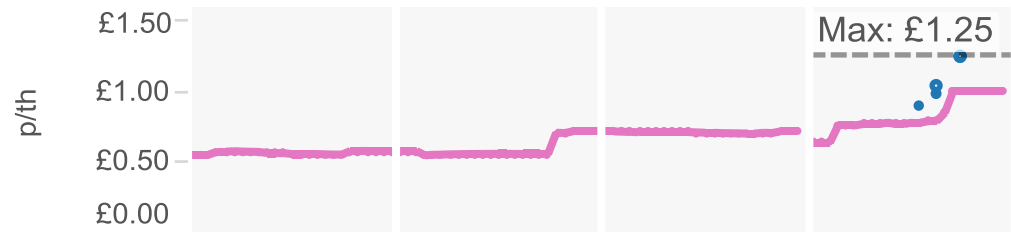
by the end of Tuesday

Linepack had depleted considerably

Instantaneous NTS Linepack



SAP and NG Trades



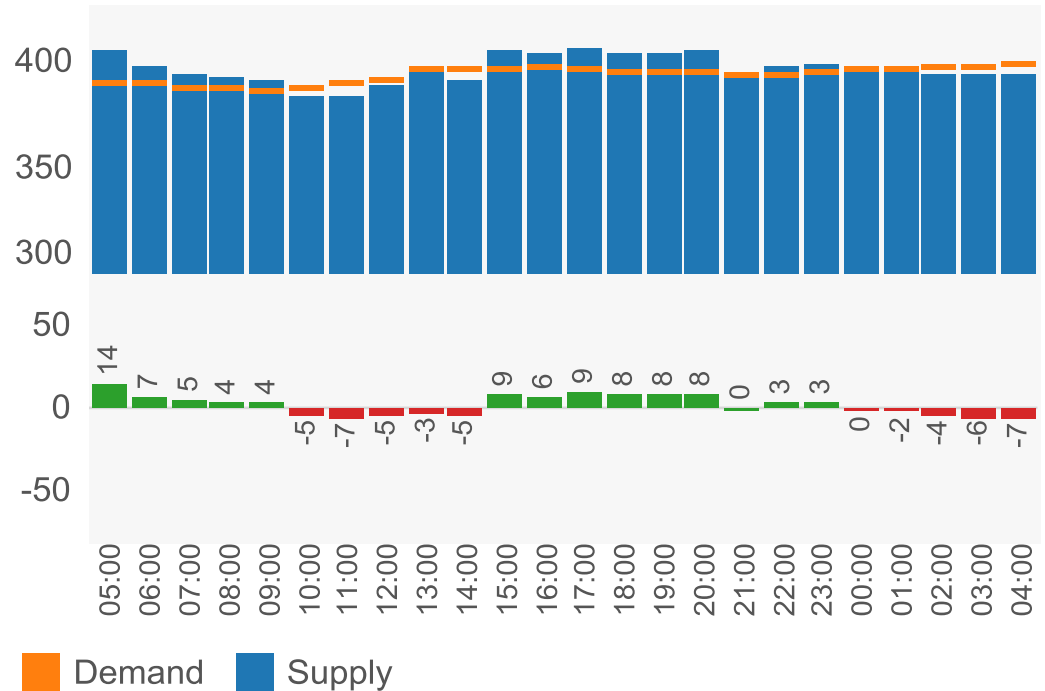
Wednesday 28th Feb

For the majority of the day, we had projected that the NTS would be balanced

until

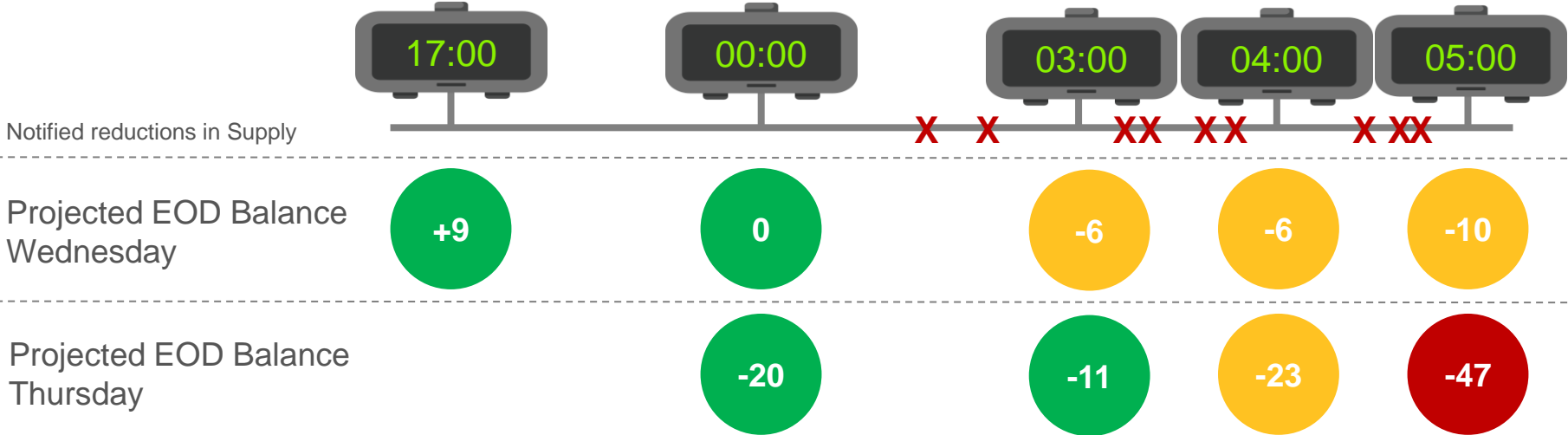
Late reductions in Supply

Projected EOD 28/02/2018



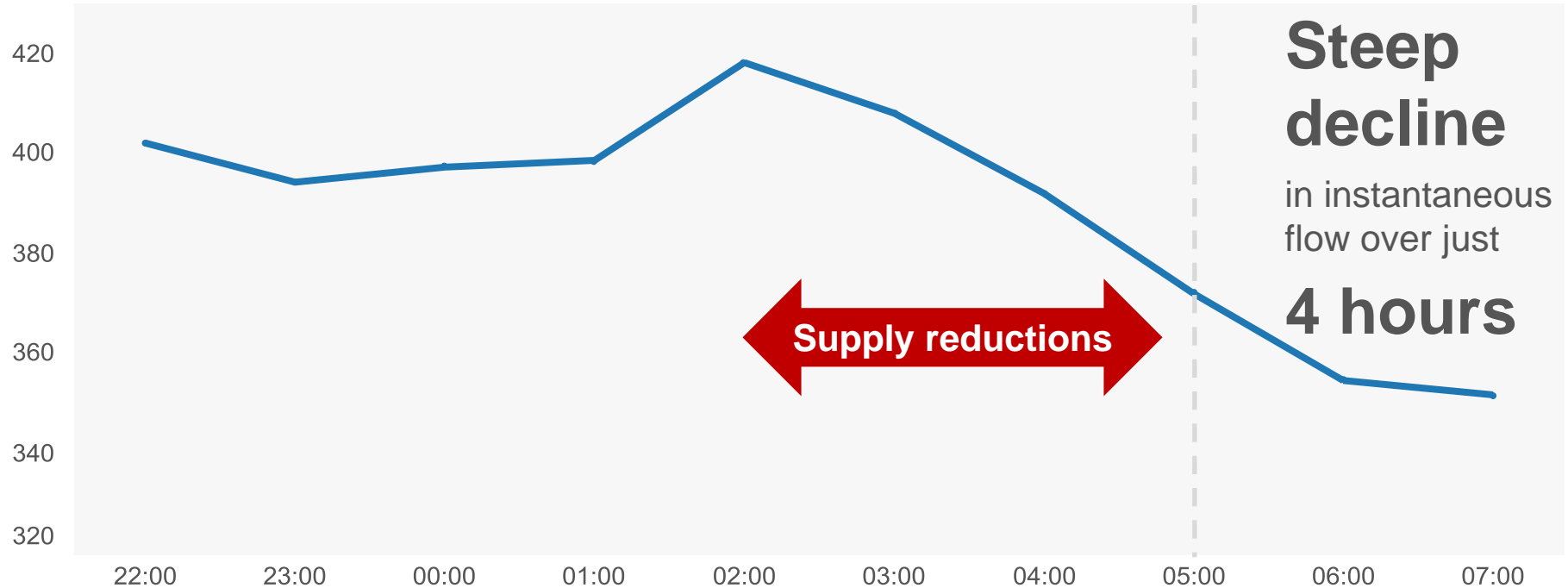
Affect of Supply reductions

The reduction in Linepack on Wednesday, would compound the affect of reduced Supply on Thursday



Supply reductions affect on instantaneous flows

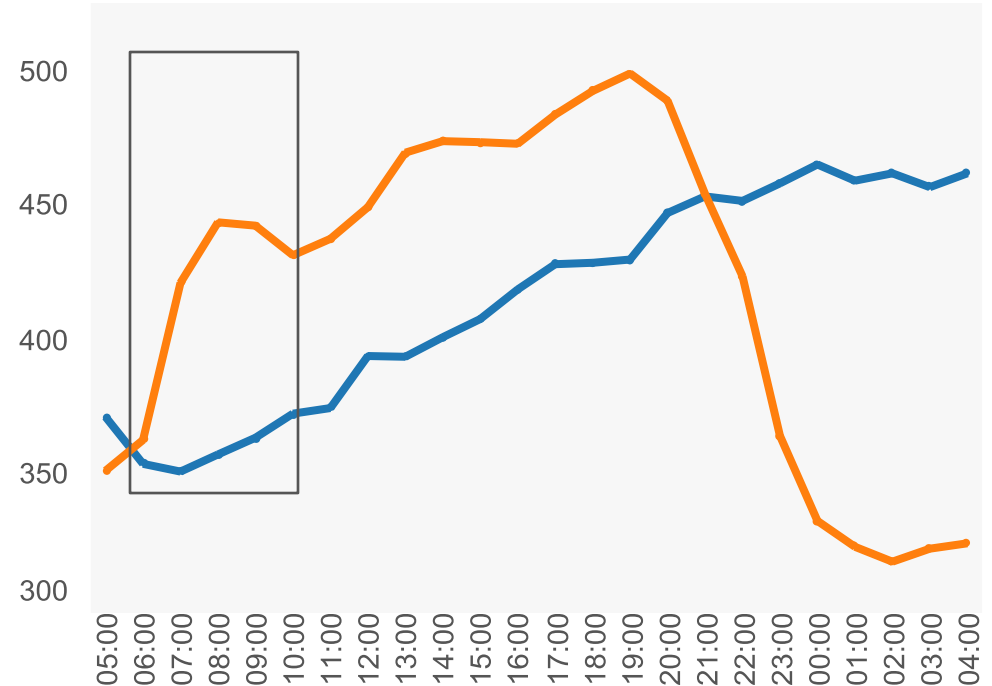
Instantaneous Supply



Thursday 1st Mar

During the morning there was a **Large imbalance between Demand and Supply**

Actual Instantaneous Supply and Demand



Thursday 1st Mar – Basis for GDW

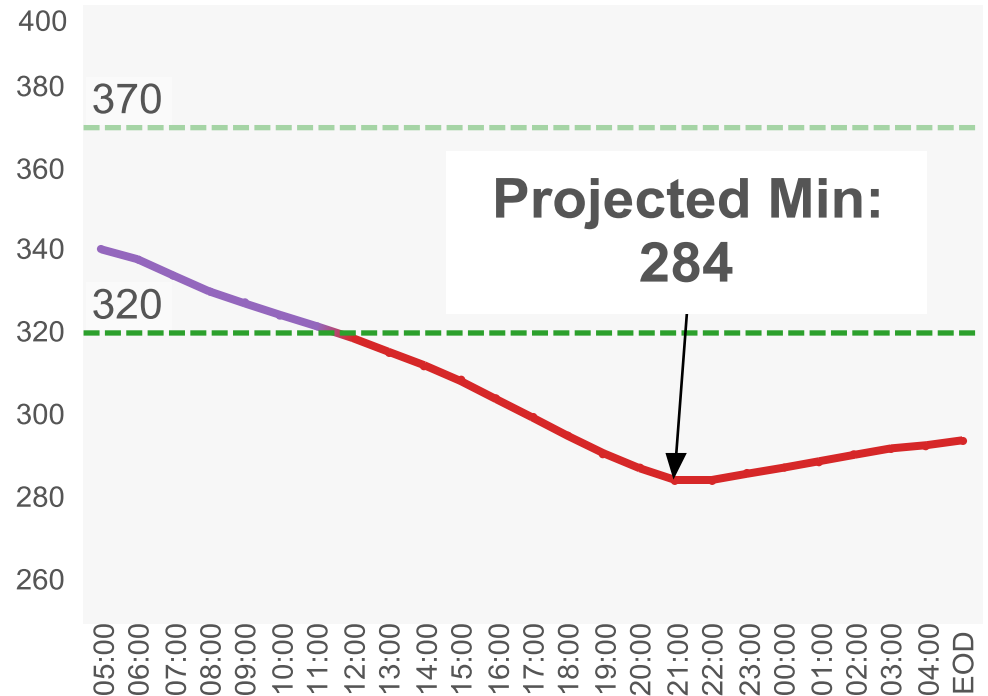
As a result of the large imbalance between Supply and Demand

Linepack was projected to fall below the normal operating range

which would put

Meeting pressure obligations at risk

Projected Instantaneous Linepack at 05:00



Thursday 1st Mar



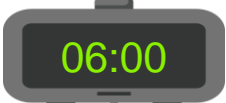
“Rules on” issued



NG national buy actions



Gas Deficit Warning (GDW) issued

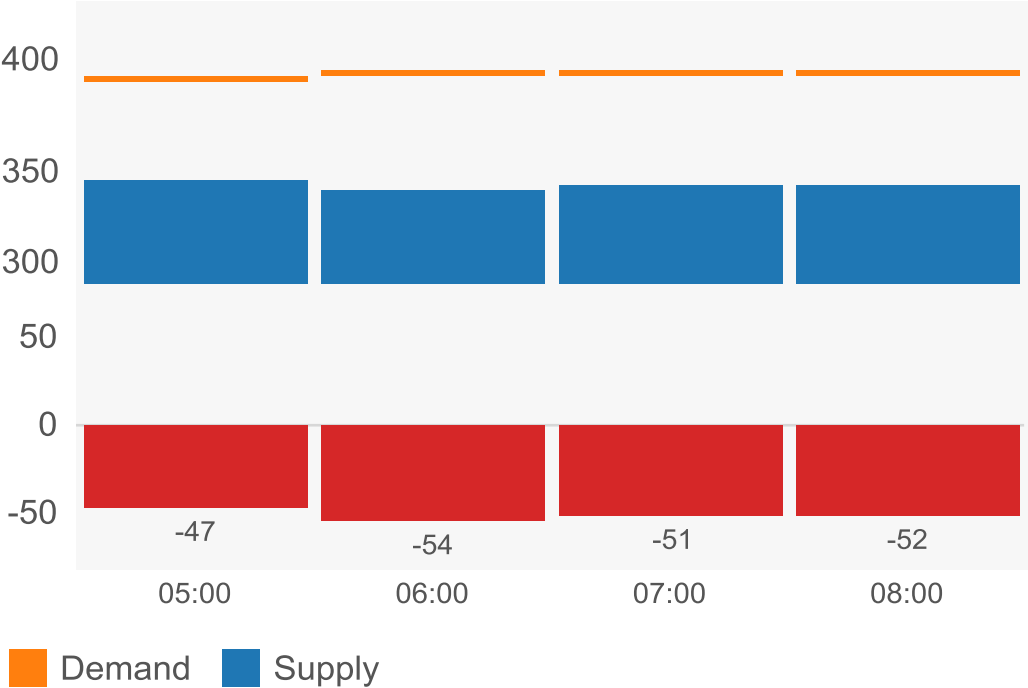


Scale back off-peak capacity (effective from 13:00)



Minimal market response

Projected EOD 01/03/2018



Thursday 1st Mar



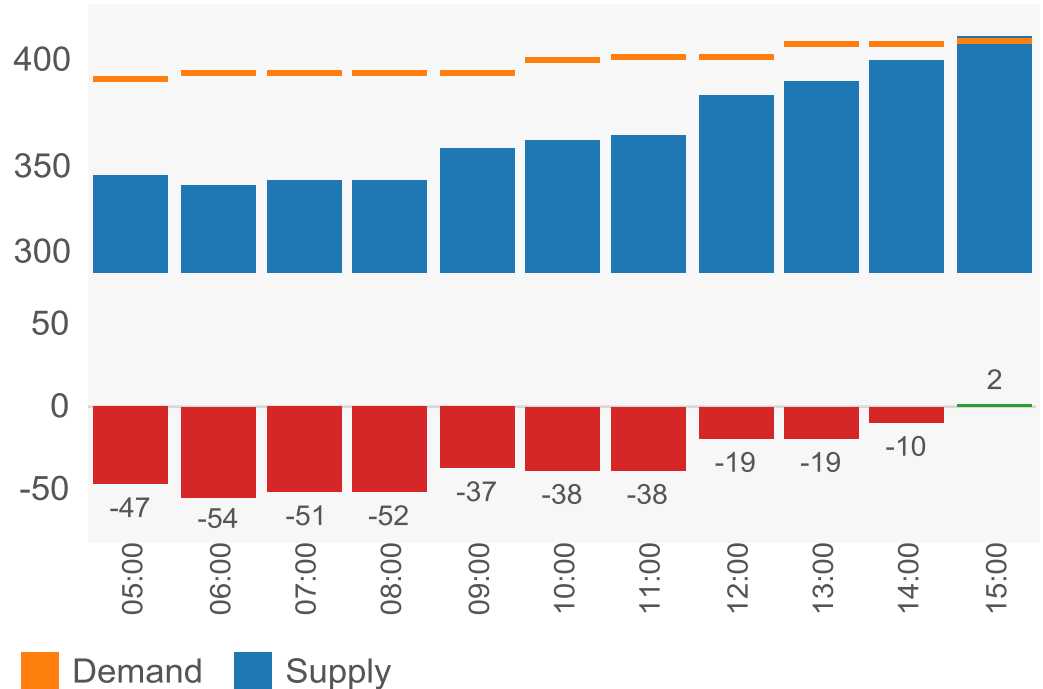
Request bids to buy locational gas

Supply starting to respond but Demand also increasing

Further national buy actions

Significant response in Supply with EOD position now projected to be balanced

Projected EOD 01/03/2018



Thursday 1st Mar – 15:00

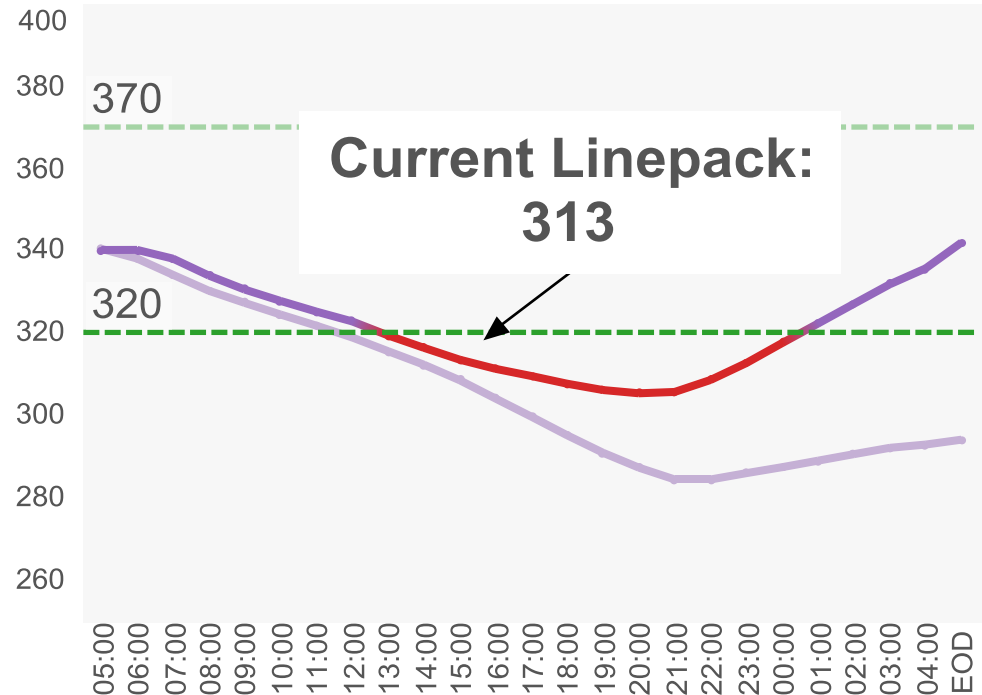
So despite the upturn in projected EOD Supply

NTS Linepack was still below normal operating range

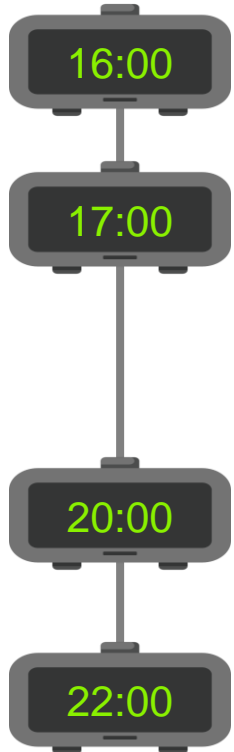
with an

Increased risk of not being able to meet pressure obligations

Projected Instantaneous Linepack at 15:00



Thursday 1st Mar



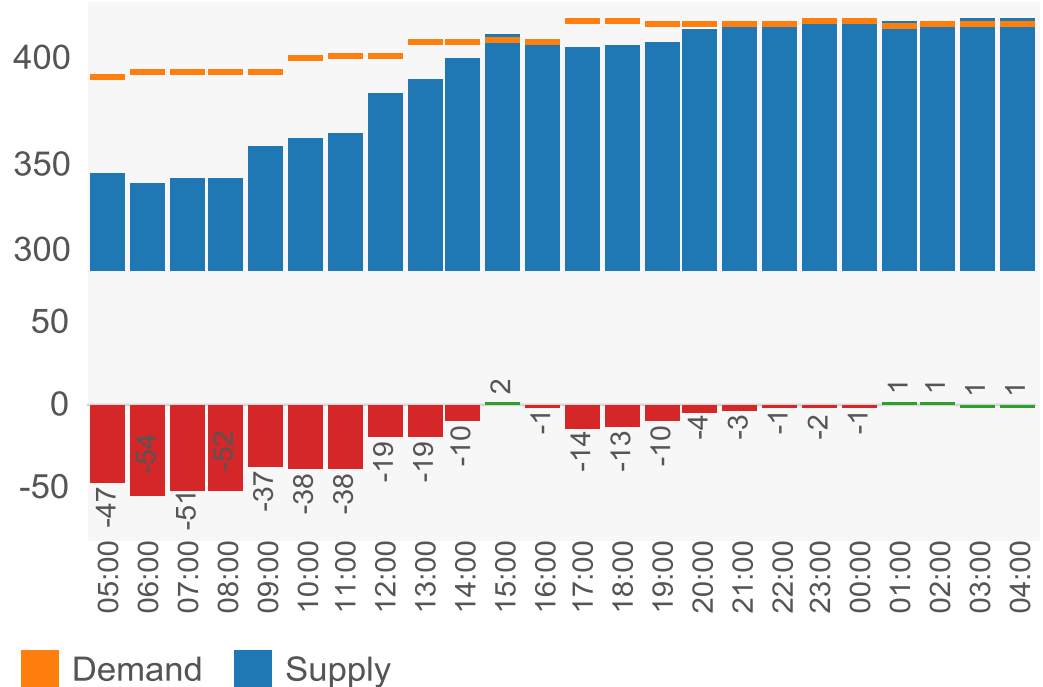
Imbalance increased

NG completed further national buy actions & OM utilised

Further market response reduced imbalance

EOD balance restored

Projected EOD 01/03/2018



Thursday 1st Mar – Key Stats

Within the day we saw

**Instantaneous
Demand over
500 mcm**

**1 in 20 LDZ
Demand**

**Lowest ever
recorded
Linepack**
(at current system size)

Friday 2nd Mar – Outlook at 05:00

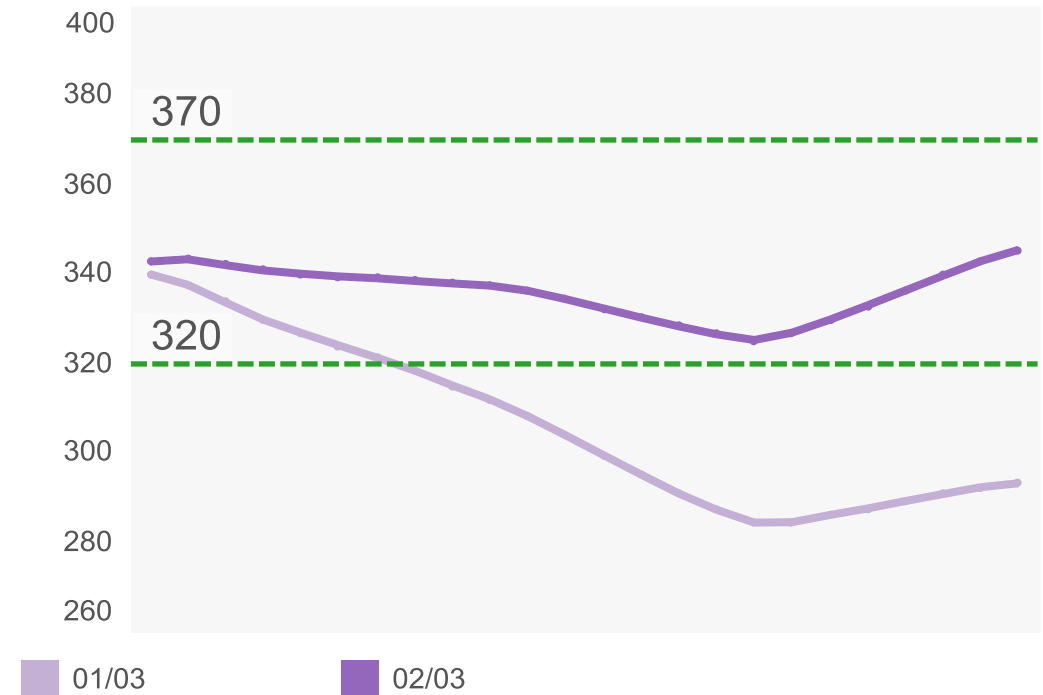
Beginning Friday the outlook for instantaneous Linepack was

Very different to projection at the start of the previous day

with the projected Linepack depletion meaning there was

No requirement for a further GDW

Projected Instantaneous Linepack at 05:00



Friday 2nd Mar – End of day

During the day

The NTS was able to gain more than 19 mcm in Linepack

resulting in a

Positive outlook heading into the weekend

The market responded to further balancing actions with

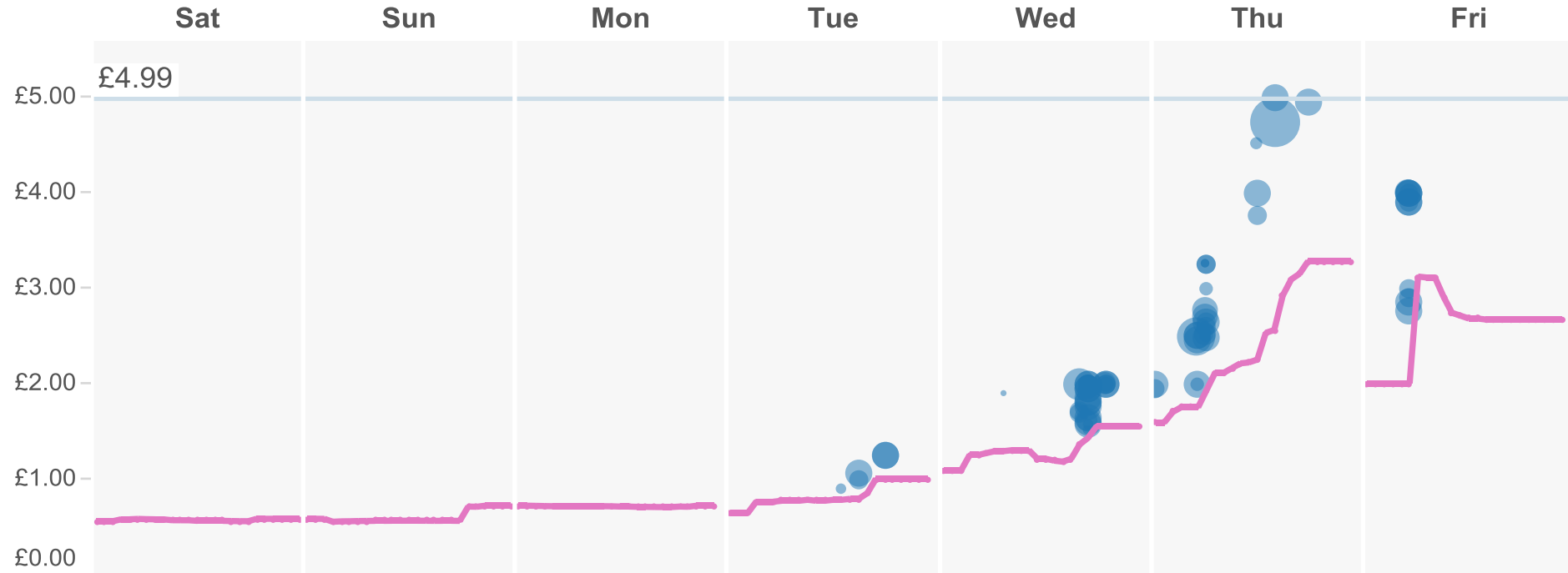
Increased Supply

Heading into the weekend and with the weather improving we forecast

Decreased Demand

Price and NG Trades

SAP and NG Trades



1st & 2nd March 2018 Cold Snap

On the 1st of March a Gas Deficit Warning (GDW) was issued :

- Start of gas day projected end of day imbalance of 47 mcm
- Instantaneous Supply & Demand mismatch of 90 mcm
- Multiple Supply losses leading to the gas day, with stock opening well below optimal level
- The highest demand for 7 years 417.6 mcm
- Balancing actions taken with NG setting the highest System Marginal Price 4.99 pence per therm, response seen with supply upturn
- National Grid Gas mobilised Silver Command to assess plan and proactively manage the gas day

This was a challenging scenario, through use of our infrastructure, balancing & operational tools, we were able to meet our obligations



Agenda

1 – Context setting

- Scope of the day
- Role reminder



2 –Operational overview

- Supply and demand
- Operational observations
- Balancing / commercial tools
- Communications



3 - Discussion

- Questions
- Group feedback



Break

Agenda

1 – Context setting

- Scope of the day
- Role reminder

2 –Operational overview

- Supply and demand
- Operational observations
- Balancing / commercial tools
- Communications

3 - Discussion

- Questions
- Group feedback

↑
Break

Communications

Active Notification System (ANS) – An electronic means for National Grid to communicate with its customers. Messages are directly relayed to a relevant customers device and are published on MIPI: Prevailing View.

Market Information Provision Initiative (MIPI) – The platform where National Grid publishes amongst other things, live operational data.

Telephone calls – National Grid’s direct communication with the distribution networks, directly connected customers and upstream Terminals and Shippers

Faxes/Email – National Grid’s incident management processes require a number of forms and instructions to be distributed to relevant customers by facsimile or email.

Operational Data and Systems

On-the-day Commodities Market (OCM) – The market that National Grid may use to trade energy on a locational and national basis. Required for the role of residual balancer.

GEMINI – An XOSERVE managed platform used by Shippers to buy and trade entry and exit capacity, nominate energy on and off the network, and trade gas.

MIPI – The platform National Grid uses to publish its operational data, including (but not limited to): supply and demand figures (both forecasts and instantaneous); linepack information; demand forecasts; storage stock levels; gas price information.

Tools on the Day

- **Enforcement of business rules** – In an unconstrained system business rules are not enforced allowing short-term flexibility to our customers. In a constrained system National Grid may reject OPNs if they are in breach of the terms of a customer's NExA for reasons including, but not limited to: lead times; % change in offtake rate; ramp rates.
- **Requests for trades** – National Grid's role as the residual balancer of the gas network allows it to take energy balancing trades on the 'On-the-day Commodities Market' (OCM) to influence the matching of supply and demand. Should there be limited market liquidity, National Grid may request bids be placed for either locational (at a specific entry or exit point) or national trades.

Tools on the Day (cont.)

- **Scale back of off-peak exit capacity** – In a constrained system National Grid may scale back (remove) a customer's right to flow gas against an off-peak product limiting a customer to only their entitlement under their firm capacity rights. Off-peak capacity may be restored at any time throughout the gas day.
- **Demand Side Response (DSR)** – Eligible Daily Metered Customers (DMCs) may place a bid on the OCM locational market to reduce gas take and therefore total system demand. National Grid takes bids in price order unless a specific location for DSR is required. A request for DSR will be communicated via ANS.
- **Gas Deficit Warning (GDW)** – A GDW is issued at National Grid's discretion based on our expectations of significant supply/demand event. When issued Shippers should seek to balance their portfolio and be prepared to respond accordingly to any balancing action requests.

Other

Please comment on your reflections of the day against any other categories to those already included on the sheet.

Please make a note of any specific questions you have that were not covered in the overview.

Feedback and questions - lets discuss!



What are your reflections of the day?

- **Communications;**
- **Operational data & systems;**
- **Tools used on the day;**
- **Any other categories of feedback or questions of National Grid?**

Next Forum dates

- 26 April - London
- 28 June - Warwick
- 27 September - London
- 25 October - London
- 29 November - London

Upcoming Agenda Items 2018

- Feedback and action plans from Customer Satisfaction survey feedback.
- Further REMIT clarity.
- Constraint management and energy balancing game.
- CLoCC.
- Shrinkage.
- Summer Outlook messages.
- Gemini re-platforming.
- Information provision – how and what do you require to run your business effectively.

Should you wish to raise a topic for discussion please email:
Box.OperationalLiaison@nationalgrid.com

Thank You

nationalgrid

121 Query Surgery

