

Demand Side Response for Winter 2005/06

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Ofgem Demand Side Response Seminar

7 November 2005

nationalgrid

Overview

- ◆ The Winter Outlook
 - ◆ The requirement for demand side response
- ◆ Information Provision
 - ◆ Website information
- ◆ Industry Framework Changes
 - ◆ Gas Balancing Alert
 - ◆ Multi-Day demand side offers
 - ◆ Other Relevant Changes

The Winter Outlook

Context

Market developments

- ♦ UKCS production is continuing to decline
- ♦ New importation and storage infrastructure is expected
 - ♦ Expansion of the Belgian Interconnector
 - ♦ Grain LNG
 - ♦ Humbly Grove storage facility
- ♦ Interactions between the UK and other markets are growing
 - ♦ We can no longer assume full imports through the Interconnector or of LNG whenever required in the UK
- ♦ Generation background is similar to last winter
 - ♦ 21% plant margin
 - ♦ But around one-third of electricity capacity is gas-fired

May Consultation Document

- ♦ Ofgem ask us to produce a winter outlook report each year
- ♦ In 2003 and 2004 we published a preliminary report in May
- ♦ In 2005 we issued a consultation report in May
 - ♦ Recognised the increasing dependence on market interactions
 - ♦ Two scenarios plus some sensitivities
 - ♦ Sought input on wide range of issues
- ♦ 15 responses, qualitative rather than quantitative
- ♦ No clear consensus but useful as a guide

Winter Outlook Report

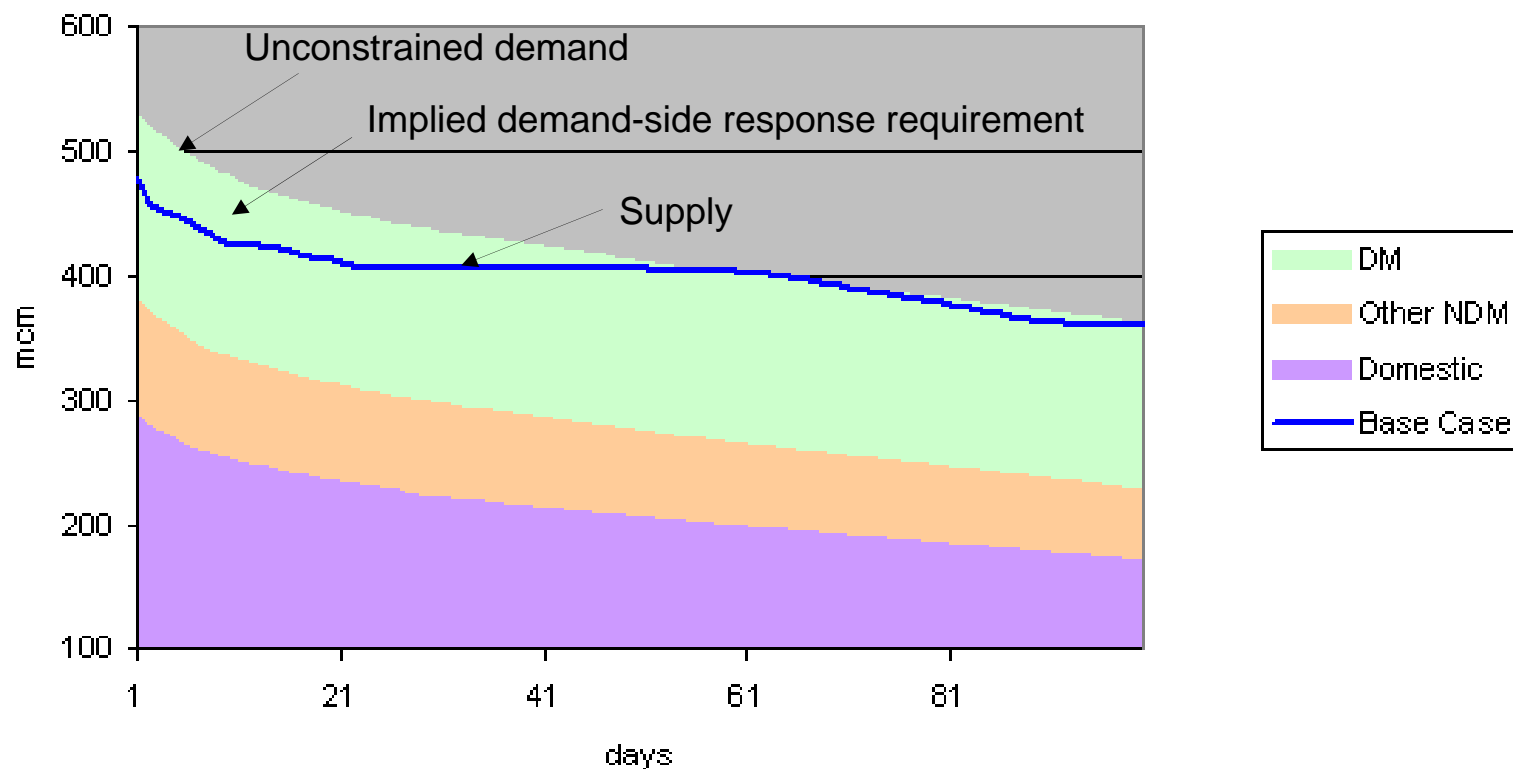
Overview

- ◆ Published on October 5
- ◆ Takes account of latest analysis and guided by consultation
- ◆ Uses a base case rather than scenarios
 - ◆ Somewhere between the consultation scenarios
 - ◆ A balanced view but lots of uncertainty
 - ◆ Supplemented by sensitivities
- ◆ Base case used to analyse the supply-demand position
 - ◆ Gas, electricity and the interaction between the two
- ◆ Output revolves around the need for gas demand response

Winter Outlook Report

Example of analysis

1 in 10 Cold Load Duration Curve Analysis for 2005/06

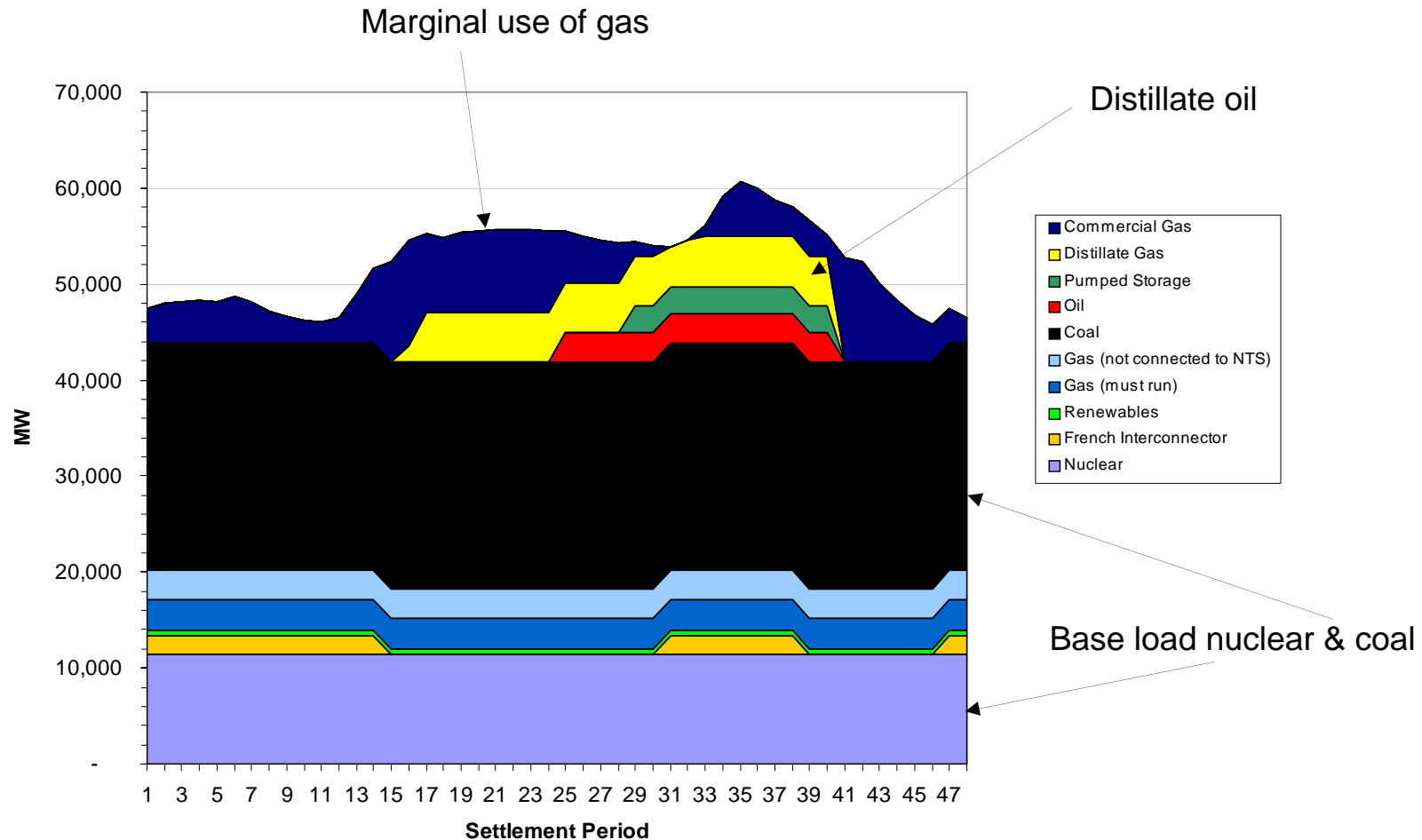


Interaction between gas and electricity

- ♦ Gas and electricity markets modelled together
- ♦ Estimates ability of CCGT sector to reduce demand
 - ♦ Results are at the “optimistic end of possibilities”
- ♦ Takes account of:
 - ♦ Real weather patterns
 - ♦ Half-hourly electricity demand
 - ♦ Anticipated generator availability
 - ♦ Daily gas demand
 - ♦ Anticipated gas supply

Interaction between gas and electricity

Potential cold day electricity generation profile



Interaction between gas and electricity

Implications

Winter severity	Estimated demand-side response required (bcm)	Potential contribution from CCGT sector (bcm)	Approximate residual requirement as percentage of non-power DM market sector
Average	0.1	0.1	None
1 in 10 cold	2.2	1.3	30% on average over 40 days
1 in 50 cold	3.7	1.8	50% on average over 50 days

Information Provision

Summary

- ◆ Information provision discussed at DSWG
- ◆ National Grid consolidating information into one area with easy access to data
- ◆ Also incorporates some new storage information
- ◆ Website planned Go-Live **15 November**
 - ◆ www.nationalgrid.com/uk/gas/operationalinfo
- ◆ Preview ...

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Daily Summary Report

DAILY SUMMARY

Current Gas Day : Thursday, 27-Oct-2005

GAS BALANCING ALERT

Tomorrow 28/10/05

Today 27/10/05

[Definitions](#)

Click [here](#) for Gas Balancing Alert history

ANS WARNINGS (Relevant ones only)

Today 27/10/05

[Definitions](#)

Click [here](#) for ANS warnings history

NOTES

Click [here](#) for Notes

» [SO Incentive Data](#)» [Misc System Info](#)» [Operational Info](#)» [Charges](#)» [Ten Year Statement](#)» [Grain LNG](#)**DEMAND**[Demand / Weather Graphs](#)

		Demand (mcm)	SND (mcm)	Variance (mcm)	
26/10/05	Actual Demand	229	293	-.64	27/10/05 10:44
27/10/05	Forecast Demand	222	295	-.73	27/10/05 10:44
28/10/05	Forecast Demand	214	293	-.79	27/10/05 10:44

Definitions

Click [here](#) for forecast demand report (SISR03)**FLOWS INTO NTS**

Today's Forecast Flows into the NTS	229 mcm	27/10/05 10:44
Today's Physical Flows into the NTS	230 mcm	27/10/05 10:44

Definitions

Click [here](#) for forecast aggregate flows report (NTSAFF)Click [here](#) for physical aggregate flows report (NTSAPF)**LINEPACK**[Linepack Graph](#)

Today's Opening Linepack	278.51 mcm	27/10/05 10:44
Predicted Closing Linepack (PCLP1)	287.34 mcm	27/10/05 10:44
Change in Linepack	08.83 mcm	27/10/05 10:44

Definitions

Click [here](#) for full system status report (NB92)**TRANSPORTER
INTERRUPTION**[Interruption Graph](#)

Likelihood to Interrupt for 27/10/05	NTS SPEC	Medium	2 Areas	27/10/05 08:30
	LDZ NSL	Medium	3 Zones	27/10/05 08:30
	LDZ Non NSL	Low	13 Zones	27/10/05 08:30

Definitions

Click [here](#) for Likelihood of interruption details

Definitions

STORAGE

	Opening Stock levels							
Range	26/10/05 GWh	27/10/05 GWh	Safety Monitor GWh	Max rate (GWh/day)	Days left	Ave rate (GWh/day)	Days left	
Short	1,735	1,737 (1%)	459 (0%)	526	2	0	100	27/10/05 05:52
Medium	4,864	4,890 (1%)	933 (0%)	315	13	10	100	27/10/05 05:52
Long	35,343	35,344 (1%)	7,806 (0%)	455	61	0	100	27/10/05 05:52

[Storage Graphs](#)

Definitions

Click [here](#) for storage monitor details

SUPPLY SUMMARY

Entry Source (data in mcm)	25/10/05 Daily Flow	Max Flow since 01/06/05	Min Flow since 01/06/05	Average 7 day Flow
Beach And IOG	227	247	13	164
Interconnector	5	17	0	5
Storage	5	32	0	4

[Supply Graphs](#)

Definitions

Click [here](#) for link to NTS Entry EOD report

PRICE

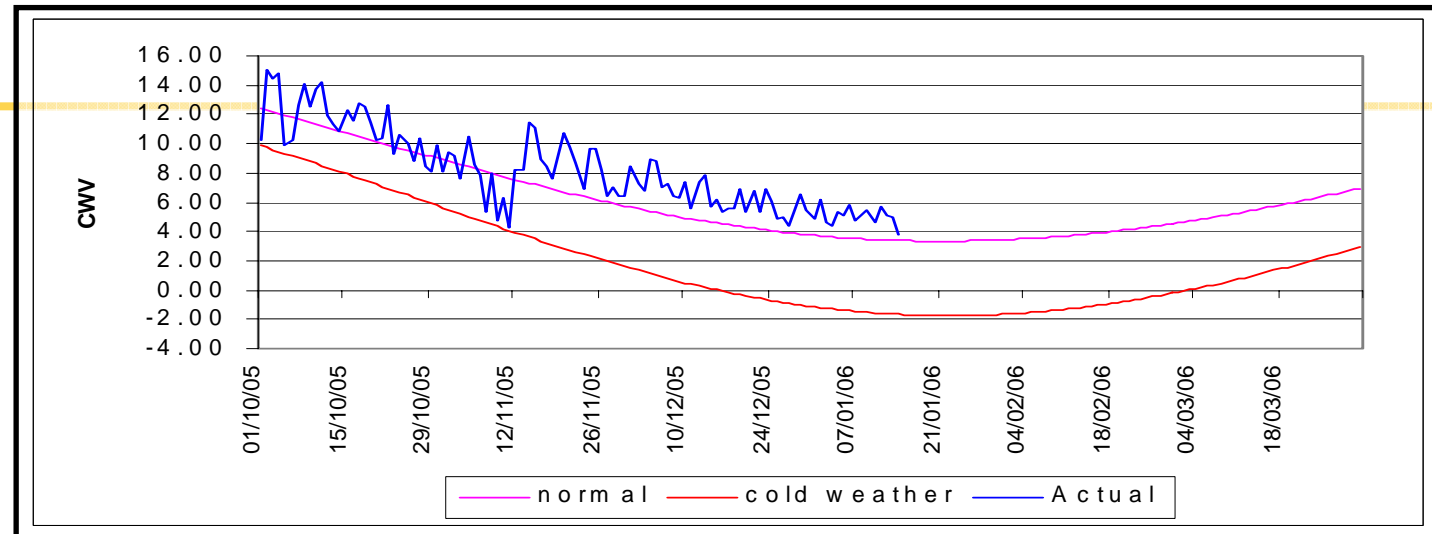
	SAP 30/09/05	SMP Buy	SMP Sell	7 day average
Price (p/kWh)	0.9622	0.9909	0.9298	0.8999

[Price Graph](#)

Definitions

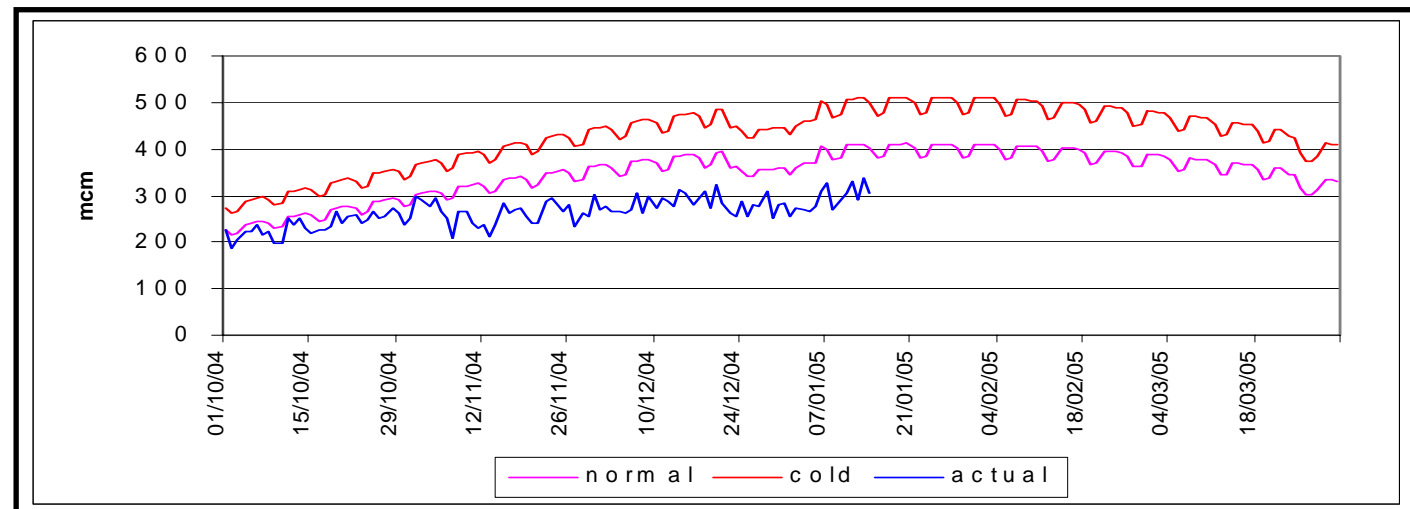
Click [here](#) for NORD01 price reportCOMPOSITE
WEATHER
VARIABLE (CMM)

COMPOSITE WEATHER
VARIABLE (CWV)
CURVE



Click [here](#) for link to met office web site

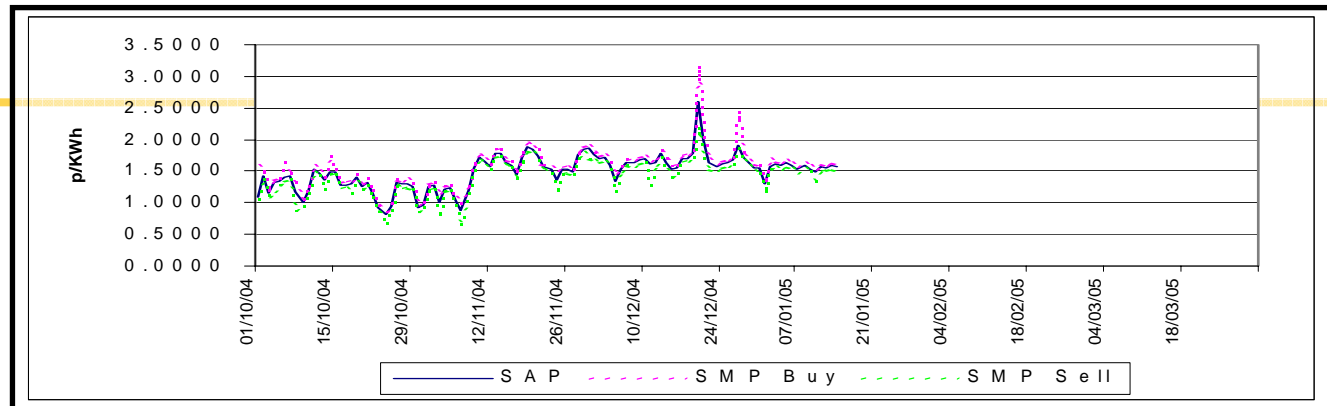
DEMAND
CURVE



Daily Outlook

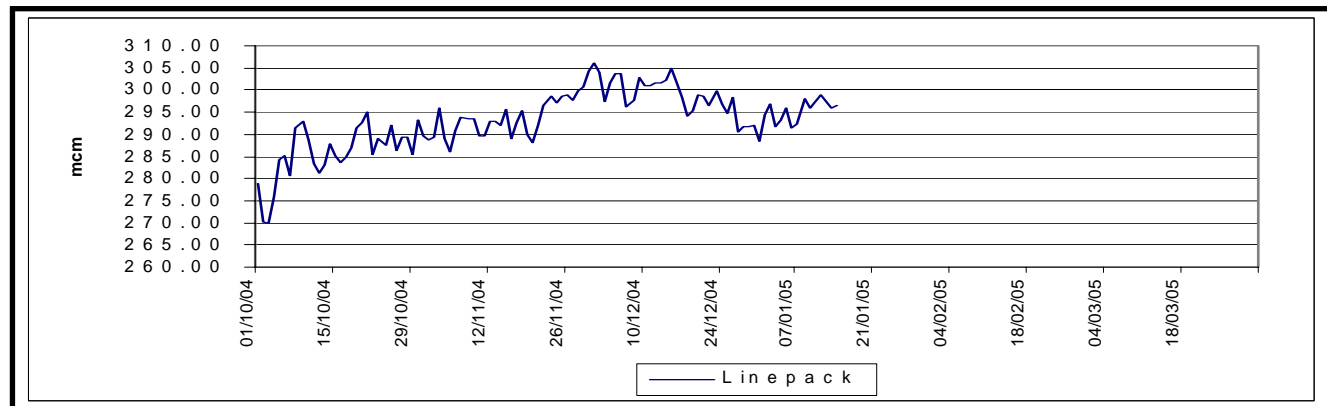
Gas Day : Wednesday, 15/01/06

PRICE



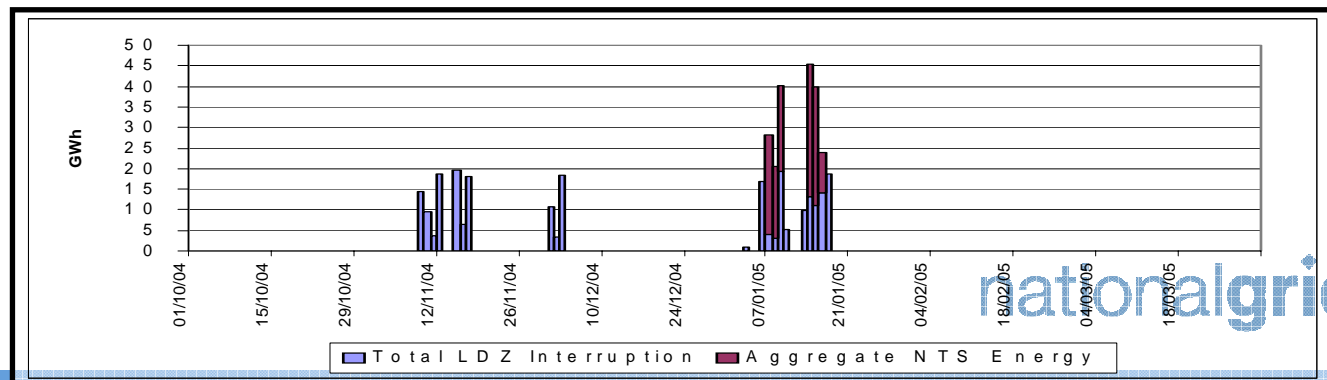
Definitions

LINEPACK



Definitions

TRANSPORTER INTERRUPTION



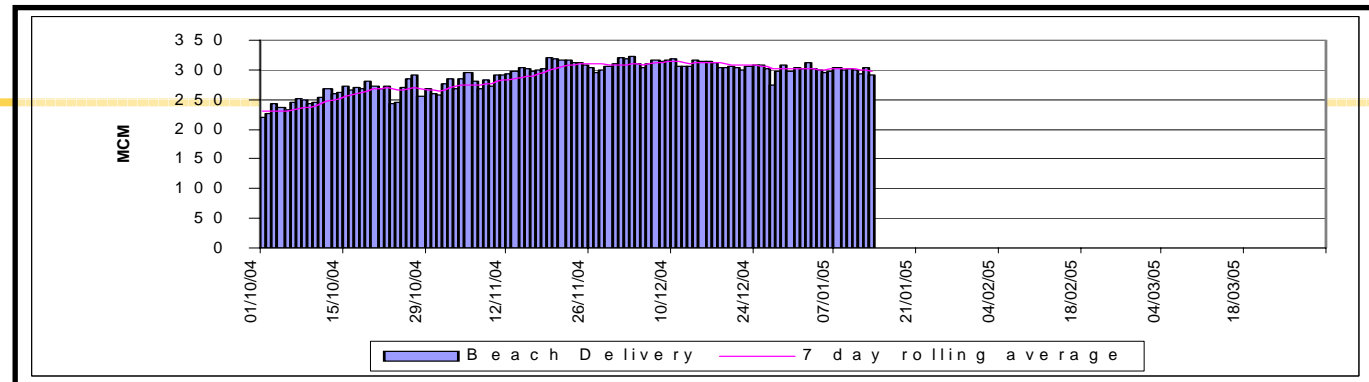
Definitions

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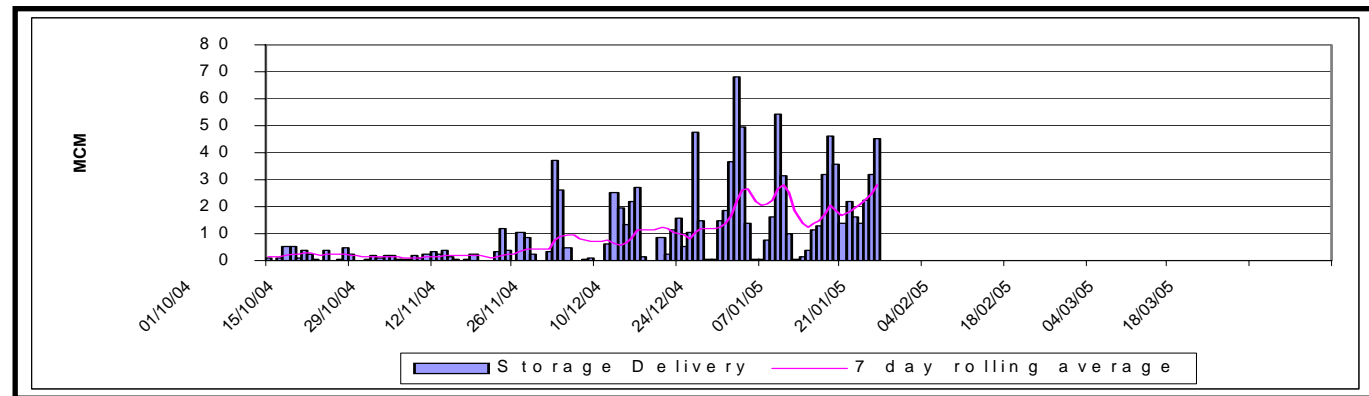
Daily Outlook

Gas Day : Wednesday, 15/01/06

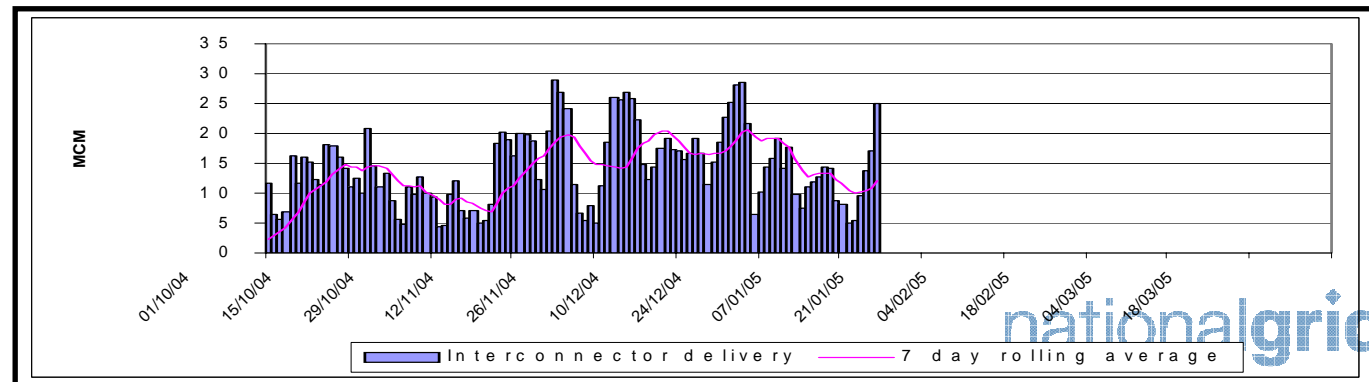
BEACH and IOG



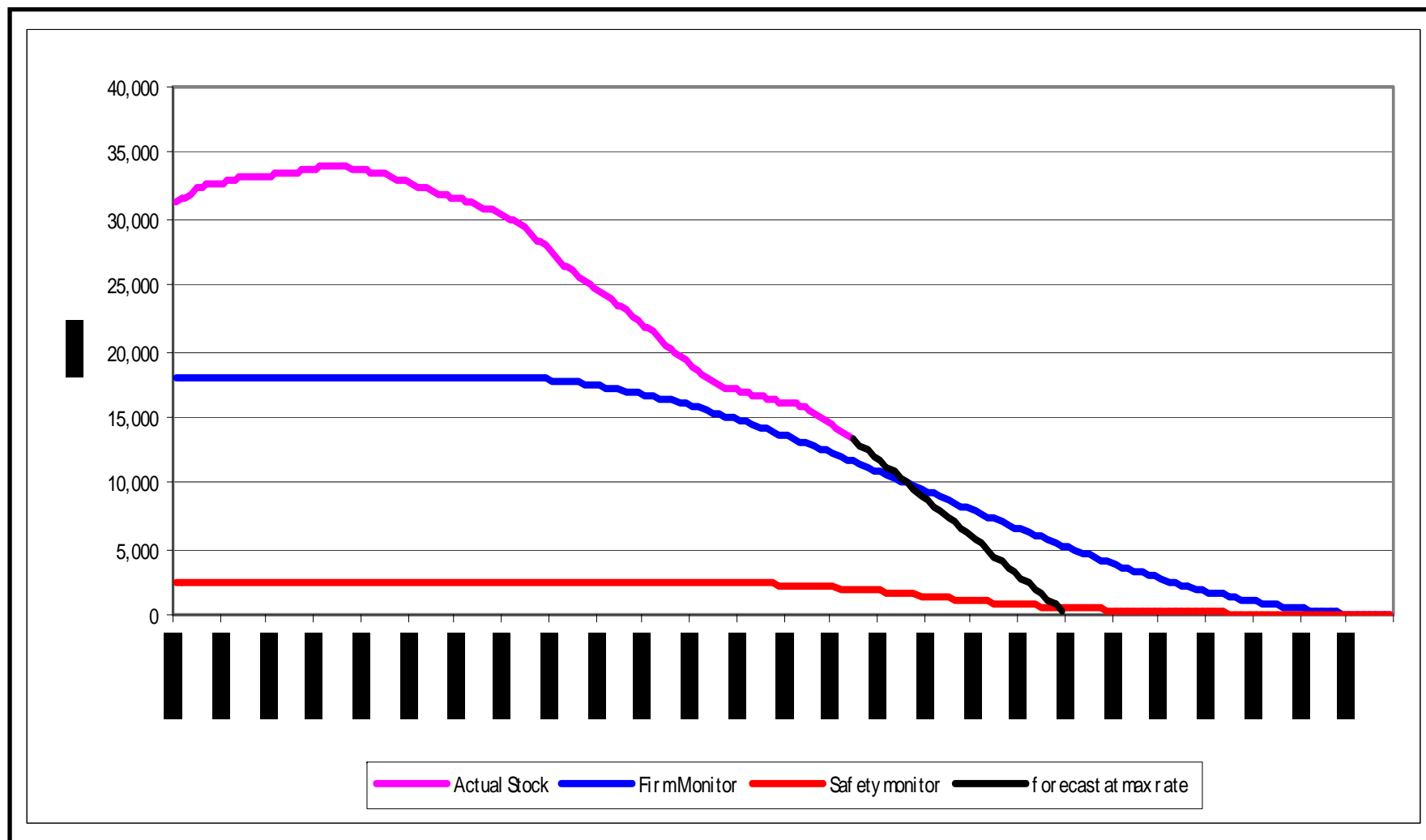
STORAGE



INTERCONNECTOR



LONG RANGE STORAGE - Dummy Data Used



Industry Framework Changes

Gas Balancing Alert (UNC Modification 62)

Summary

- ♦ The DSWG have developed a proposed methodology for setting a Gas Balancing Alert (GBA) based on a combination of the absolute Supply & Demand level and the impact of a potential breach of a Safety Storage Monitor
- ♦ The GBA should indicate a potential requirement for demand response
- ♦ The GBA will not cover the likelihood of Interruption to manage Transportation Constraints

Gas Balancing Alert (GBA)

- ◆ Initial Trigger level based on
 - ◆ Forecast Maximum Supplies
- ◆ GBA issued when
 - ◆ Forecast daily demand > Trigger Level
- ◆ Trigger level will be modified as each type of storage approaches its safety monitor

GBA Trigger Timing & Sensitivity

- ♦ It is proposed that GBAs will be assessed and potentially issued following the 13:00 demand forecast on D-1 (day ahead)
- ♦ The GBA will be adjusted based on storage being less than or equal to 2 days from a breach based on the maximum rate
- ♦ It may be possible to issue the GBAs with more notice but this will increase their likelihood
- ♦ Considering potential for within day trigger

Storage Information

- ♦ Web page will show storage stock levels at 06.00 D on 16.00 on D+1
- ♦ GBA trigger to use this information less any SFN information in order to decide if trigger should be revised.
 - ♦ Requesting further permission from storage operators to publish the data

Historical Analysis

- ◆ At 477 mcm/d (86.5% peak) there would have been no GBA issued in the past 4 years
- ◆ At 428 mcm/d (77.6% peak) there would have been;
 - ◆ No GBA winter 2004/05
 - ◆ 5 GBA's winter 2003/04
 - ◆ 14 GBA's winter 2002/03
 - ◆ 3 GBA's winter 2001/02

Facilitating Demand Side Response - Proposal (UNC Modification 61)

What the Proposal would provide

- ◆ New Balancing actions facilitated only following the publication of a Gas Balancing Alert
- ◆ Proposal would create ability for multi-day offers to be made on the OCM and to be considered OTC
- ◆ Cashout algorithm would reflect the costs of the multiday action apportioned by when the requirement is deemed to be of value
- ◆ Modification would allow National Grid to use mechanisms other than OCM
 - ◆ I.e. we have the ability to take a multiday offer outside of the OCM if the shipper cannot use the OCM

Timetable for Modification

Modification Proposal Raised	1/11/2005
Transmission Workstream Discussion	3/11/2005
Proposal issued for Consultation	7/11/2005
Closeout for representations	21/11/2005
FMR issued to Joint Office	24/11/2005
Modification Panel Recommendation	1/12/2005
Ofgem decision expected	5/12/2005

If proposal is implemented

- ◆ Post offers on the OCM through a shipper following the issuance of a Gas Balancing Alert
- ◆ If the shipper cannot use OCM then facility will be in place to offer a bilateral contract
 - ◆ Standard contract (hopefully available on the website)
- ◆ Target would be early December implementation

Other Relevant Changes

Approved Modifications

- ◆ Top Up removal for Winter 2004/05
- ◆ Removal of rights for residual balancer to interrupt prior to an Emergency if demand when is greater than 85% of 1 in 20 peak day
- ◆ Sharpened incentives through changes to Emergency Cashout arrangements
- ◆ All seek to provide incentives to the shippers as Primary balancers and recognise SO as residual balancer
- ◆ Hence shippers should be after demand side services