

# Demand Side Response for Winter 2005/06

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Ofgem Demand Side Response Seminar

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**nationalgrid**

# Overview

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- ◆ 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

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# Context

## Market developments

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- ♦ 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

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- ♦ 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

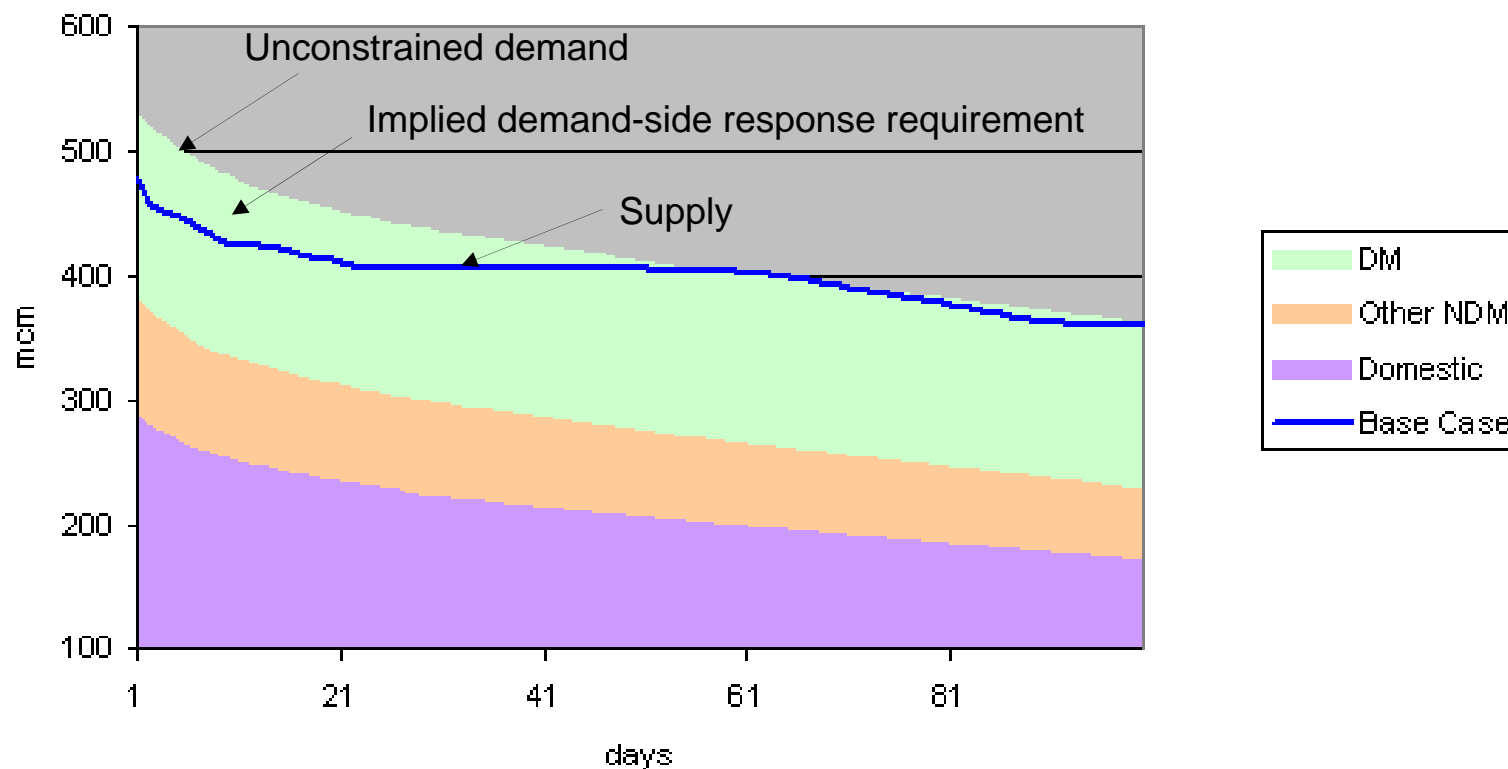
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- ◆ Published on October 5
- ◆ Takes account of latest analysis and guided by consultation
- ◆ Uses a base case rather than scenarios
  - ◆ Somewhere between the consultation scenarios
  - ◆ A balanced view but lots of uncertainty
  - ◆ Supplemented 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

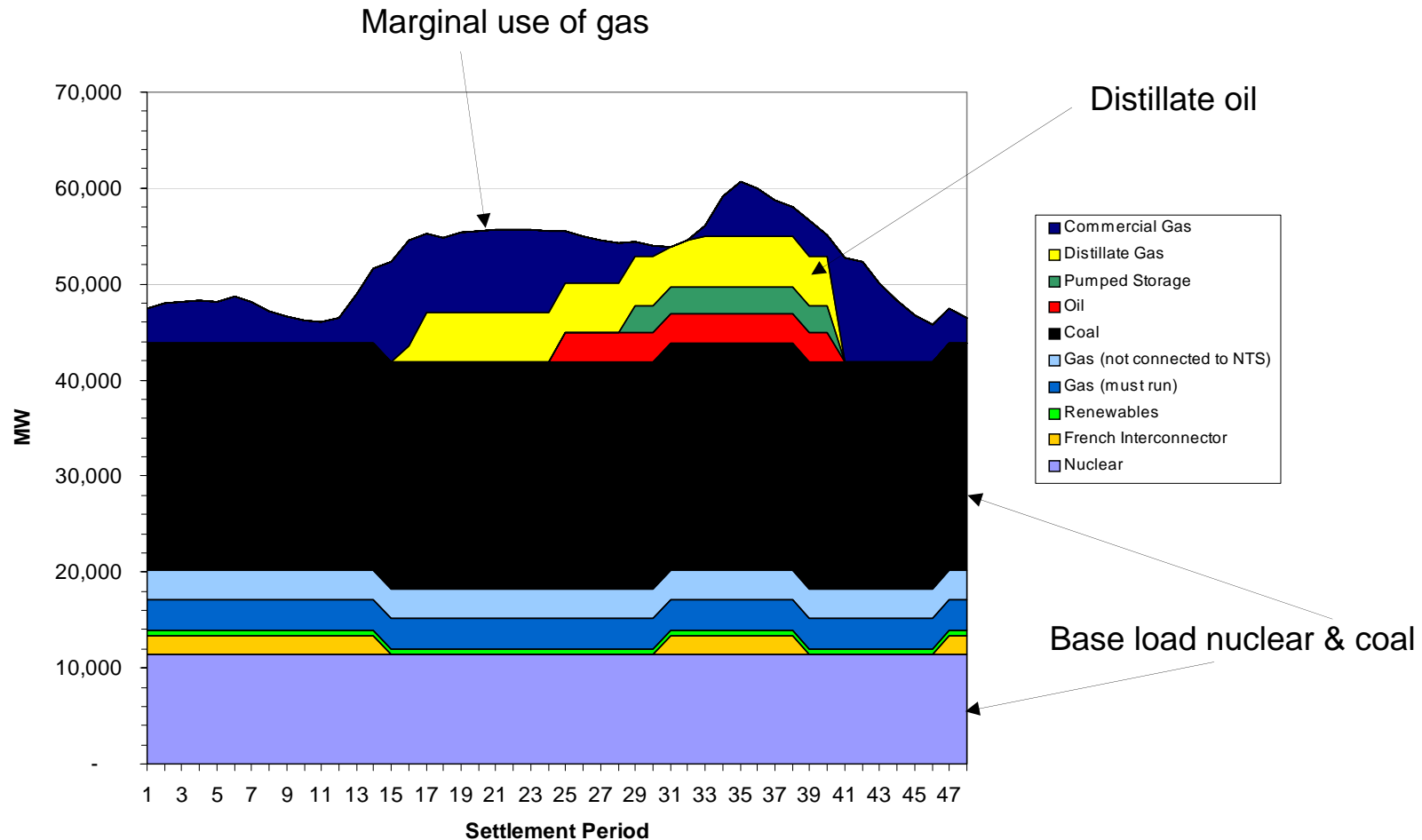
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- ◆ Gas and electricity markets modelled together
- ◆ Estimates ability of CCGT sector to reduce demand
  - ◆ Results are at the “optimistic end of possibilities”
- ◆ Takes account of:
  - ◆ Real weather patterns
  - ◆ Half-hourly electricity demand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

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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

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# Summary

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- ◆ Information provision discussed at DSWG
- ◆ National Grid consolidated information into one area with easy access to data
- ◆ Also incorporates some new storage information
- ◆ Website went Live **15 November**
  - ◆ <http://www.nationalgrid.com/uk/Gas/Data/dsr/>



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» **Daily Summary Report**

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» [SO Incentive Data](#)

» [Misc System Info](#)

## Daily Summary Report

### DAILY SUMMARY

Current Gas Day : Tuesday, 22-Nov-2005

GAS BALANCING ALERT

Tomorrow 23/11/05

Today 22/11/05

NONE

[Definitions](#)

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

ANS WARNINGS (Relevant ones only)

Today 22/11/05

NONE

[Definitions](#)

Click [here](#) for ANS warnings history

NOTES

Click [here](#) for Notes

» [News](#)

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## DEMAND

		Demand (mcm)	SND (mcm)	Variance (mcm)	
21/11/05	Actual Demand		351		
22/11/05	Forecast Demand	369	353	16	22/11/05 00:00
23/11/05	Forecast Demand		355		

[Demand / Weather  
Graphs](#)

Definitions

Click [here](#) for forecast demand report (SISR03)

## FLOWS INTO NTS

Today's Forecast Flows into the NTS	377 mcm	22/11/05 09:00
Today's Physical Flows into the NTS	373 mcm	22/11/05 09:00

Definitions

Click [here](#) for forecast aggregate flows report (NTSAFF)

Click [here](#) for physical aggregate flows report (NTSAPF)

## LINEPACK

Today's Opening Linepack	295.7 mcm	22/11/05 07:02
Predicted Closing Linepack (PCLP1)	299.8 mcm	22/11/05 07:02
Change in Linepack	4.1 mcm	22/11/05 07:02

[Linepack Graph](#)

Definitions

Click [here](#) for full system status report (NB92)

## TRANSPORTER INTERRUPTION

Likelihood to Interrupt for 22/11/05	NTS SPEC	Low	4 Areas	21/11/05 15:53
	LDZ NSL	Medium	1 Zone	21/11/05 15:53
	LDZ Non NSL	Low	13 Zones	21/11/05 15:53

[Interruption Graph](#)

Definitions

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

## STORAGE

	Opening Stock levels							
Range	20/11/05 GWh	21/11/05 GWh	Safety Monitor GWh	Max rate (GWh/day)	Days left	Ave rate (GWh/day)	Days left	
Short	1,756	1,760 (101%)	459 (26%)	526	2.5	0	>100	21/11/05 14:36
Medium	4,943	4,805 (96%)	933 (13%)	315	12.3	39	>100	21/11/05 14:36
Long	34,667	34,198 (98%)	7,806 (22%)	455	58.0	132	>100	21/11/05 14:36

[Storage Graphs](#)

Definitions

Click [here](#) for storage monitor details

## SUPPLY SUMMARY

Entry Source (data in mcm)	20/11/05 Daily Flow	Max Flow since 01/10/05	Min Flow since 01/10/05	Average 7 day Flow
Beach and IOG	275	292	219	277
Interconnector	32	41	1	33
Storage	56	56	0	28

[Supply Graphs](#)

Definitions

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

## PRICE

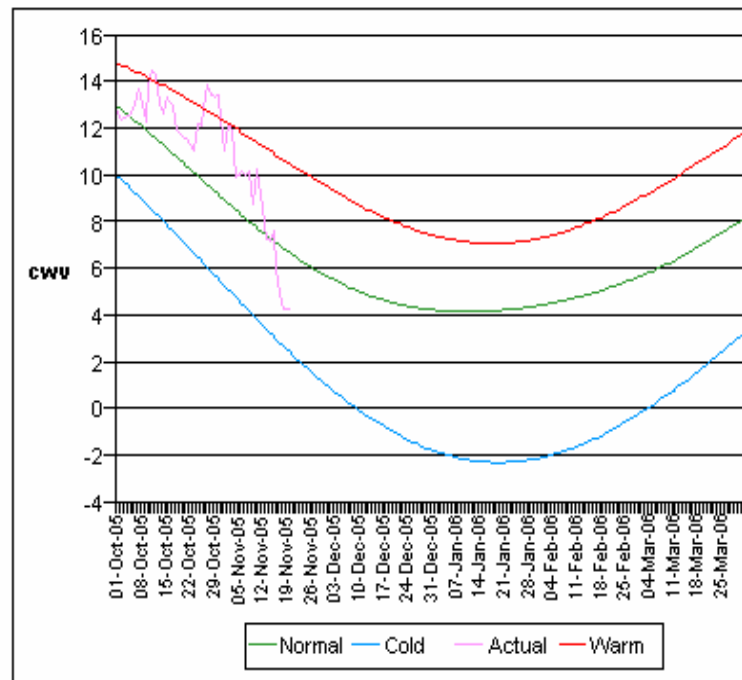
	SAP 18/11/05	SMP Buy	SMP Sell	7 day average
Price (p/kWh)	2.4308	2.4595	2.3984	1.9709

[Price Graph](#)

Definitions

Click [here](#) for NORD01 price report

## COMPOSITE WEATHER VARIABLE (CWV) CURVE

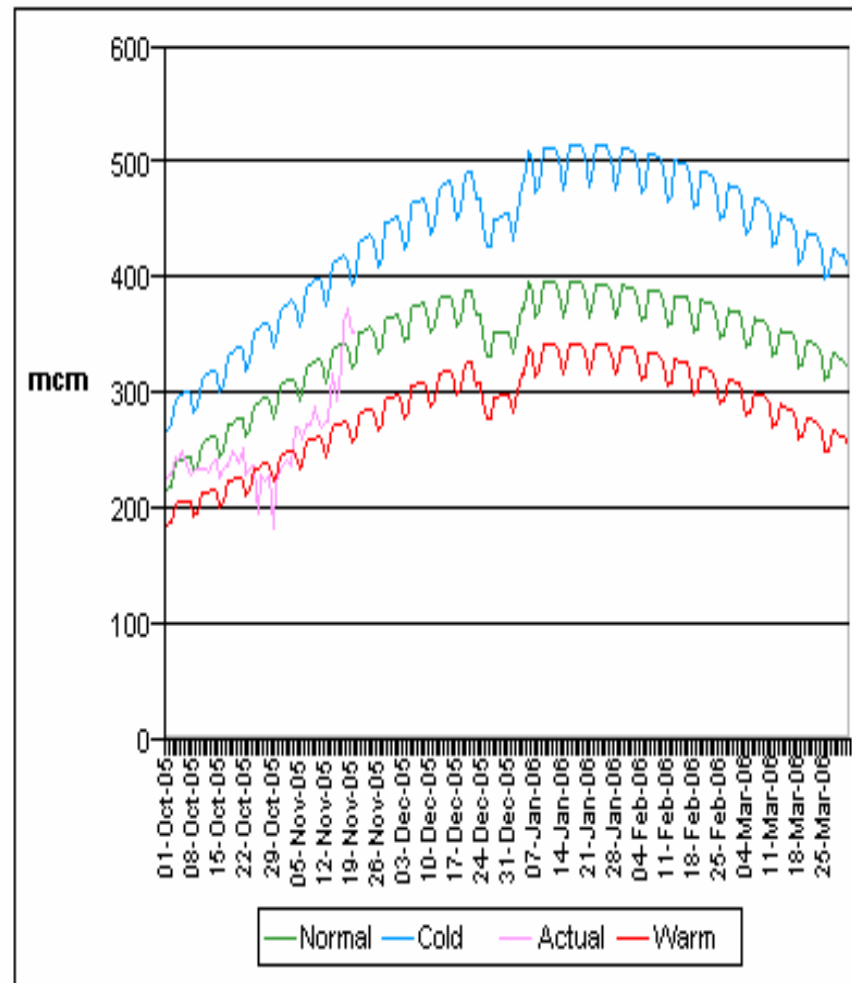


Definitions

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



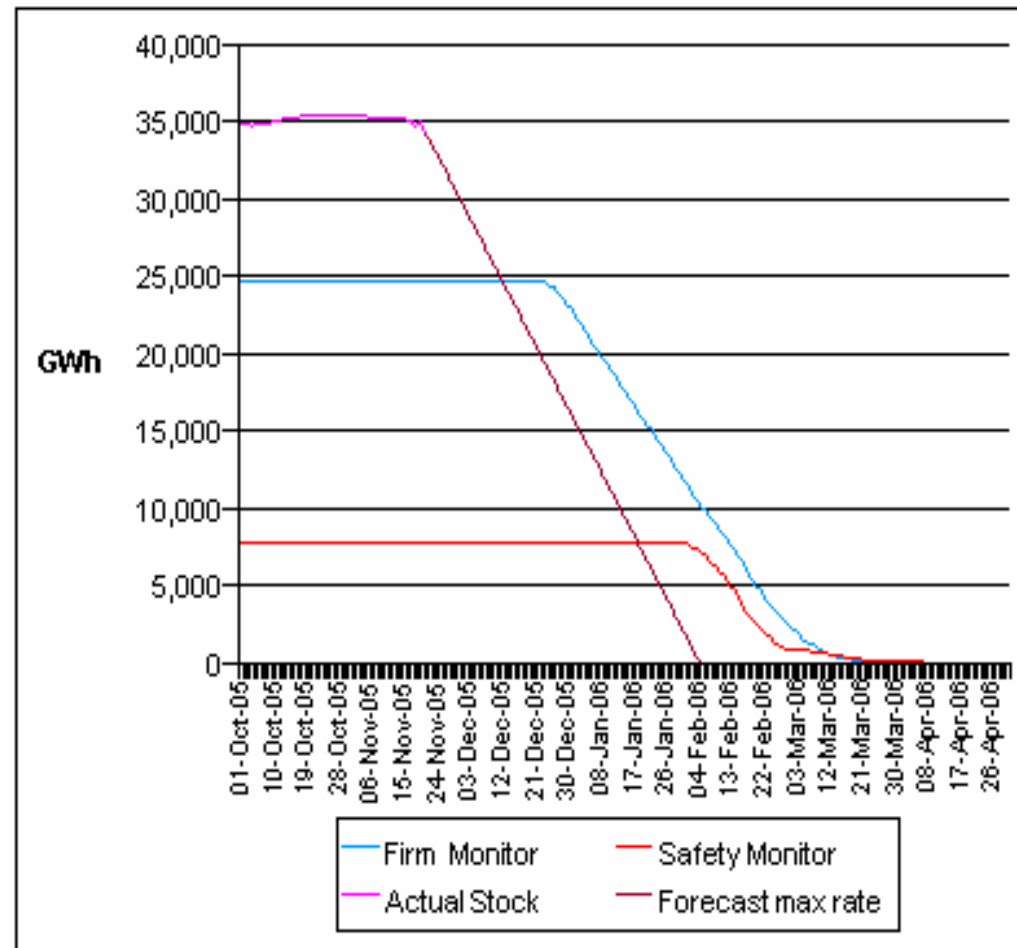
## DEMAND CURVE



Definitions

[Return to Demand Table](#)

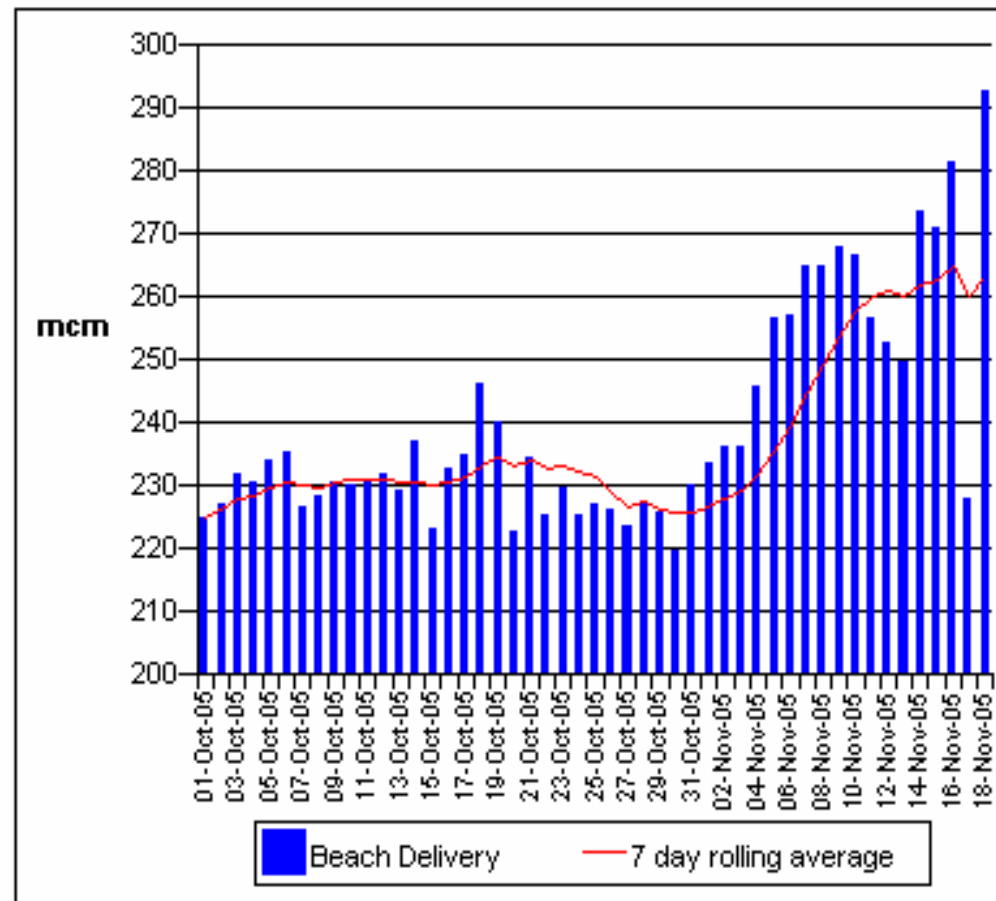
## LONG RANGE STORAGE



Definitions

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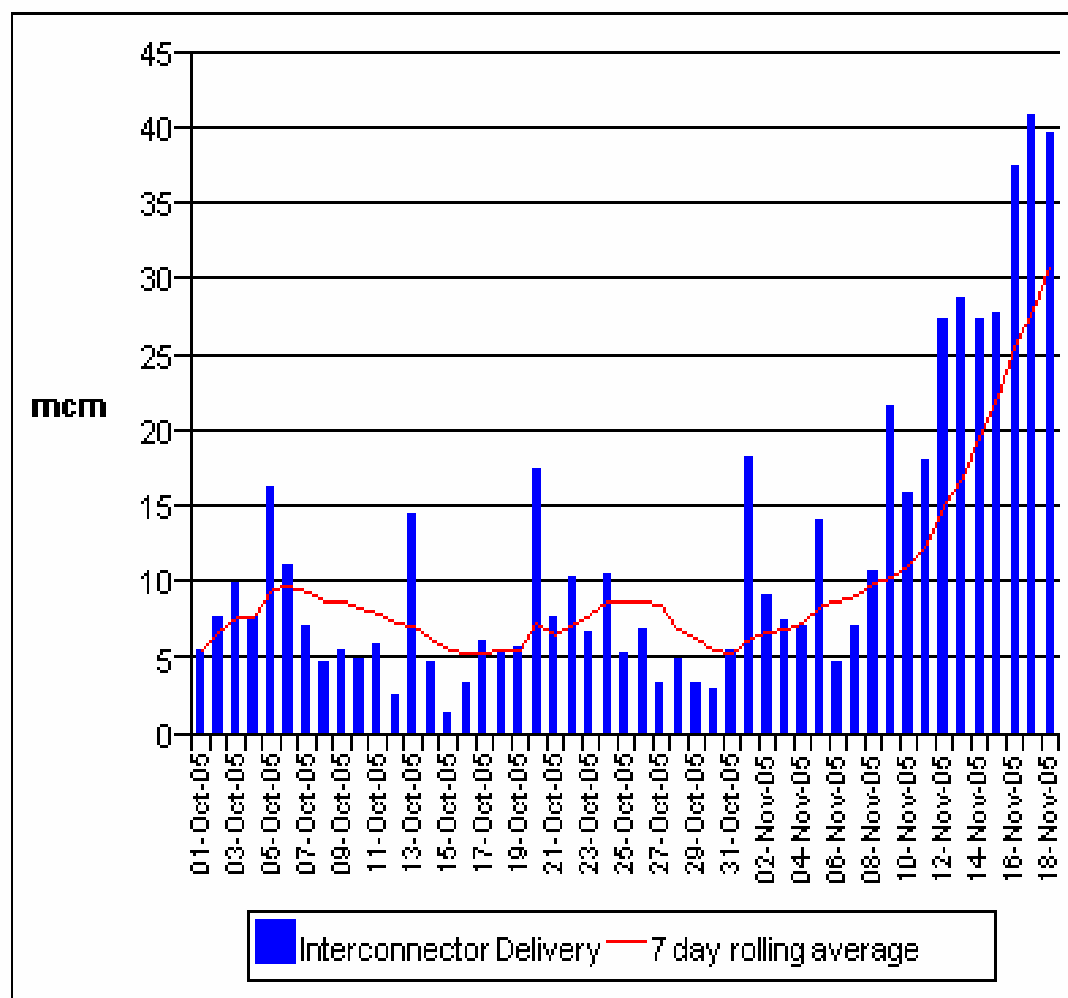
## BEACH and IOG



Definitions

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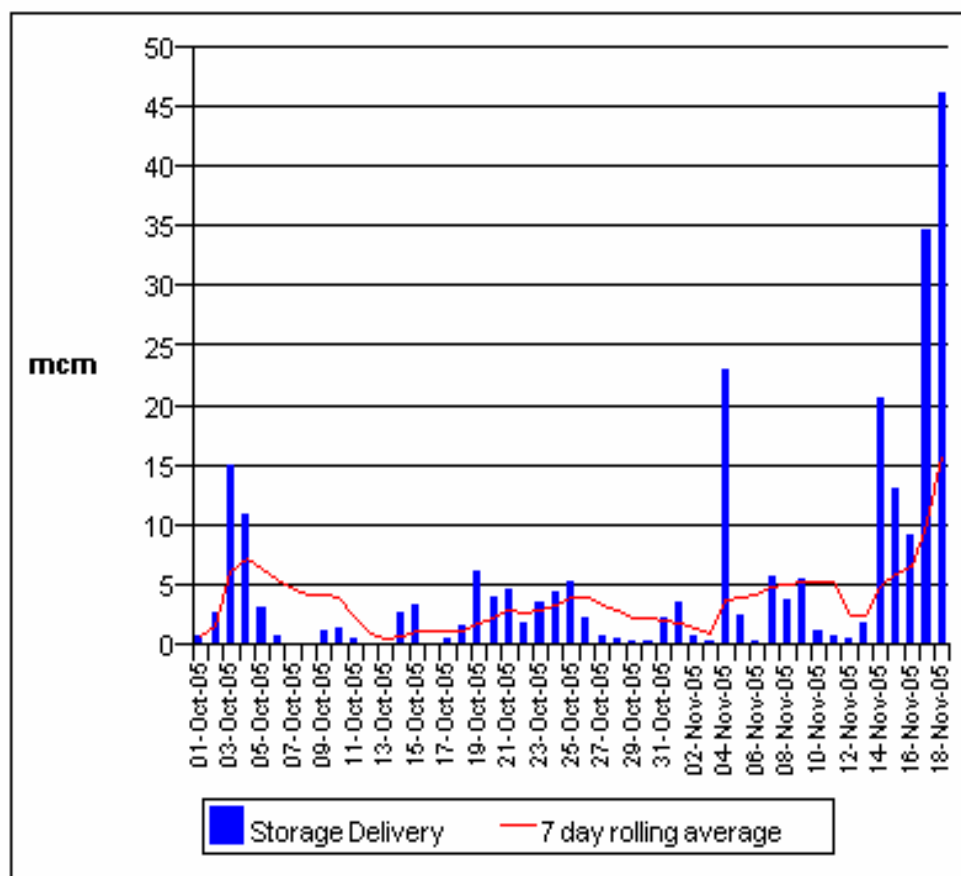
## INTERCONNECTOR



Definitions

Click [here](#) for link to IUK website

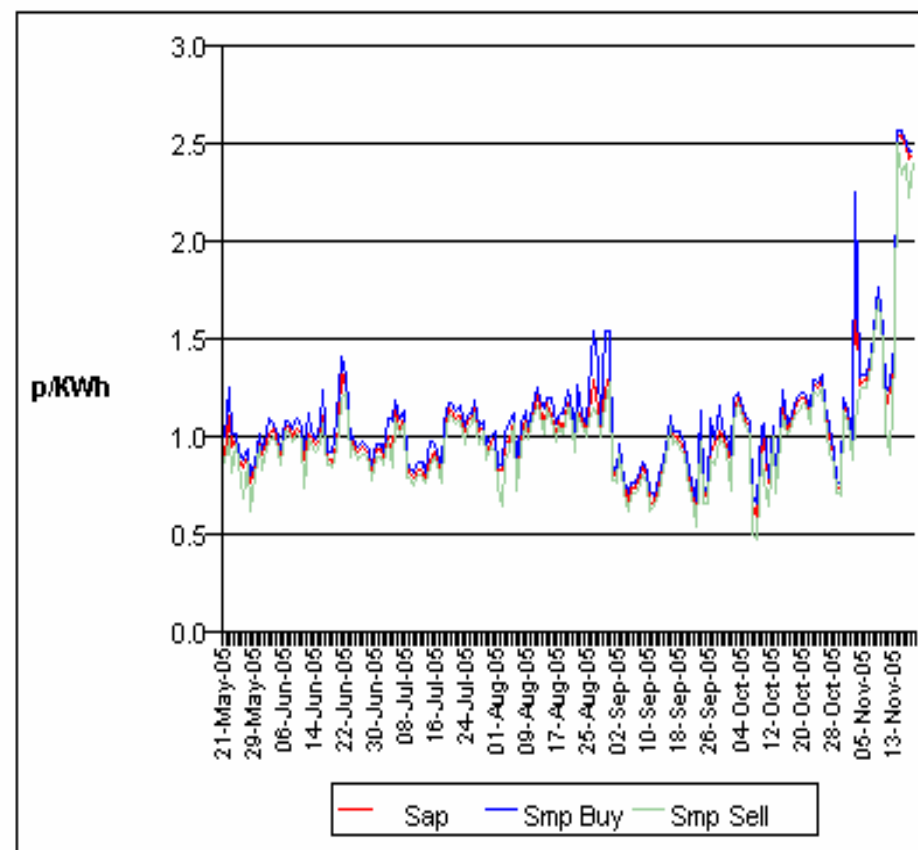
## STORAGE



Definitions

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## PRICE

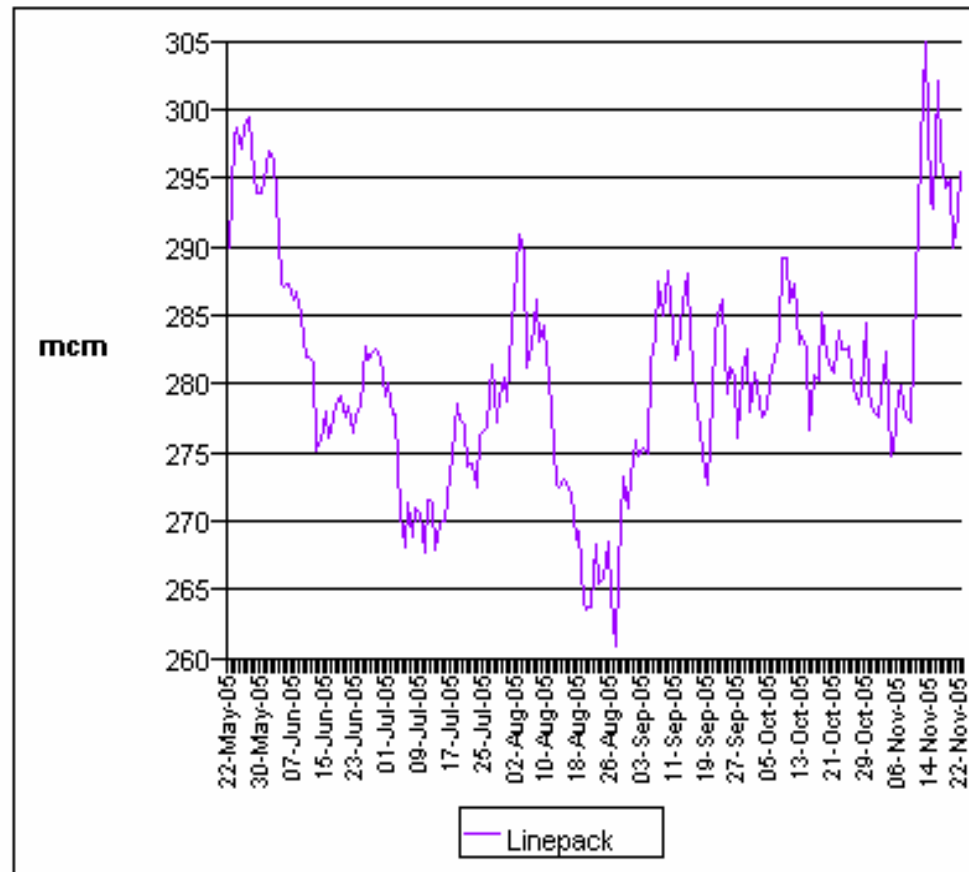


Definitions

[Return to Price Table](#)

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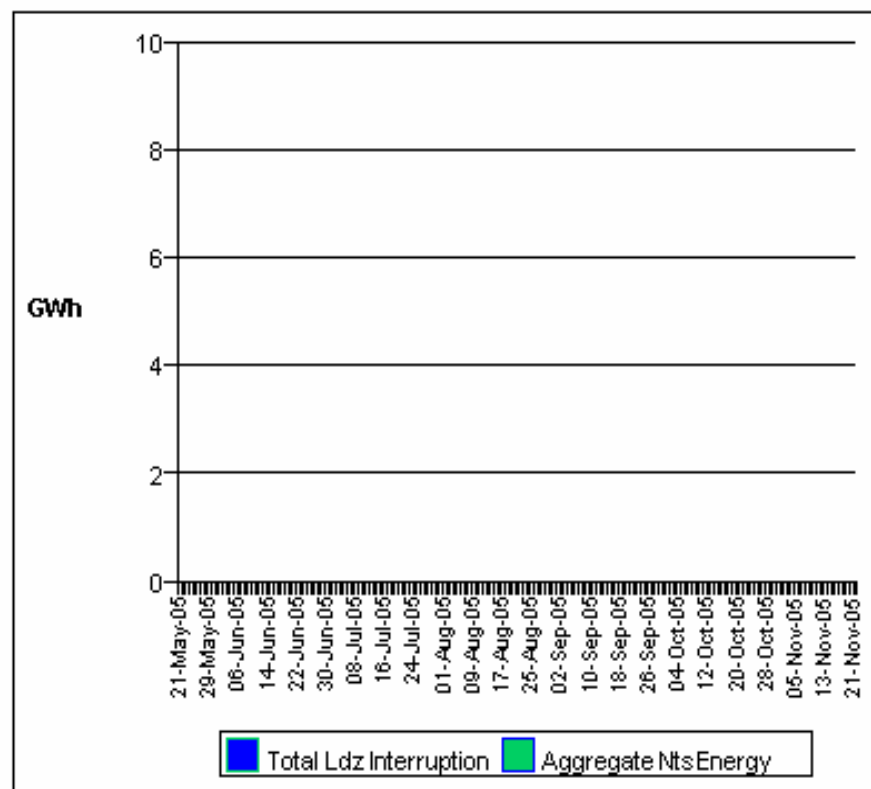
## LINEPACK



Definitions

[Return to Linepack Table](#)

## TRANSPORTER INTERRUPTION



Definitions

[Return to Interruption Table](#)

Click [here](#) for link to Electricity Balancing Mechanism Reporting



# Industry Framework Changes

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# Gas Balancing Alert (UNC Modification 62)

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# Summary

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- ♦ 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)

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- ◆ 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

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- ◆ 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

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- ♦ 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

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- ◆ 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 (1 in 9 warm)
  - ◆ 3 GBA's winter 2001/02

# Facilitating Demand Side Response - Proposal (UNC Modification 61)

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# What the Proposal would provide

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- ◆ 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

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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

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- ◆ 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

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# Approved Modifications

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- ◆ 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 looking for demand side services