

**Gas Contingency Arrangements  
Helping to avoid a gas emergency through 'Demand  
Side' response**

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## Presentation

- 'Demand side' response
- Commercial incentives on shippers
- Key indicators of a likely gas shortage
- Emergency Contact Details
- Demand side products from your supplier

## **E.ON's UK position**

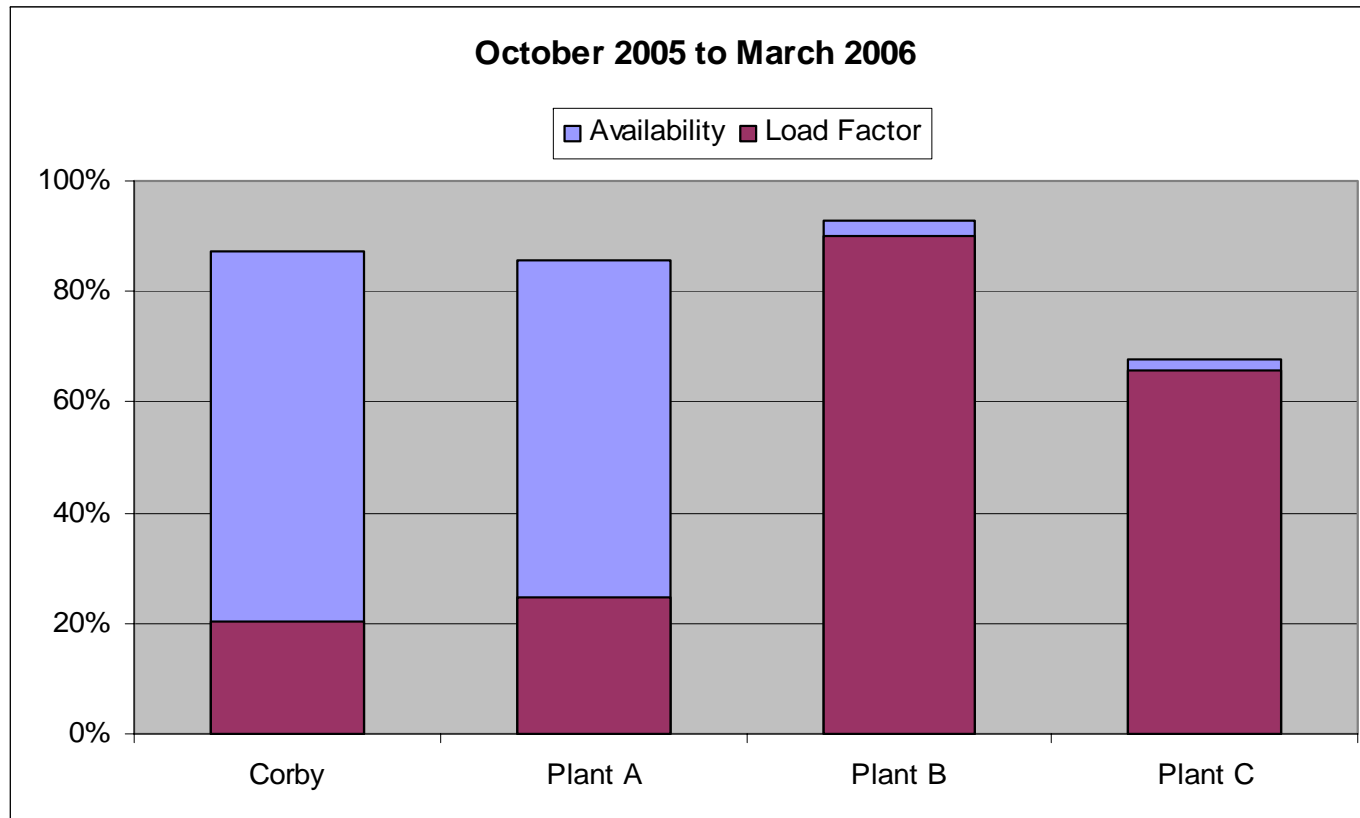
- One of UK's the largest gas consumers.
- The UK's largest non-nuclear power station operator.
- By volume second largest gas supplier serving domestic to large I&C customers.
- E.ON Ruhrgas has a major stakeholding in the UK-Continent Interconnector.

Committed to assist Government/  
Regulatory Authorities in ensuring  
continuity of gas and electricity supplies

## **Level of demand side response affected by:**

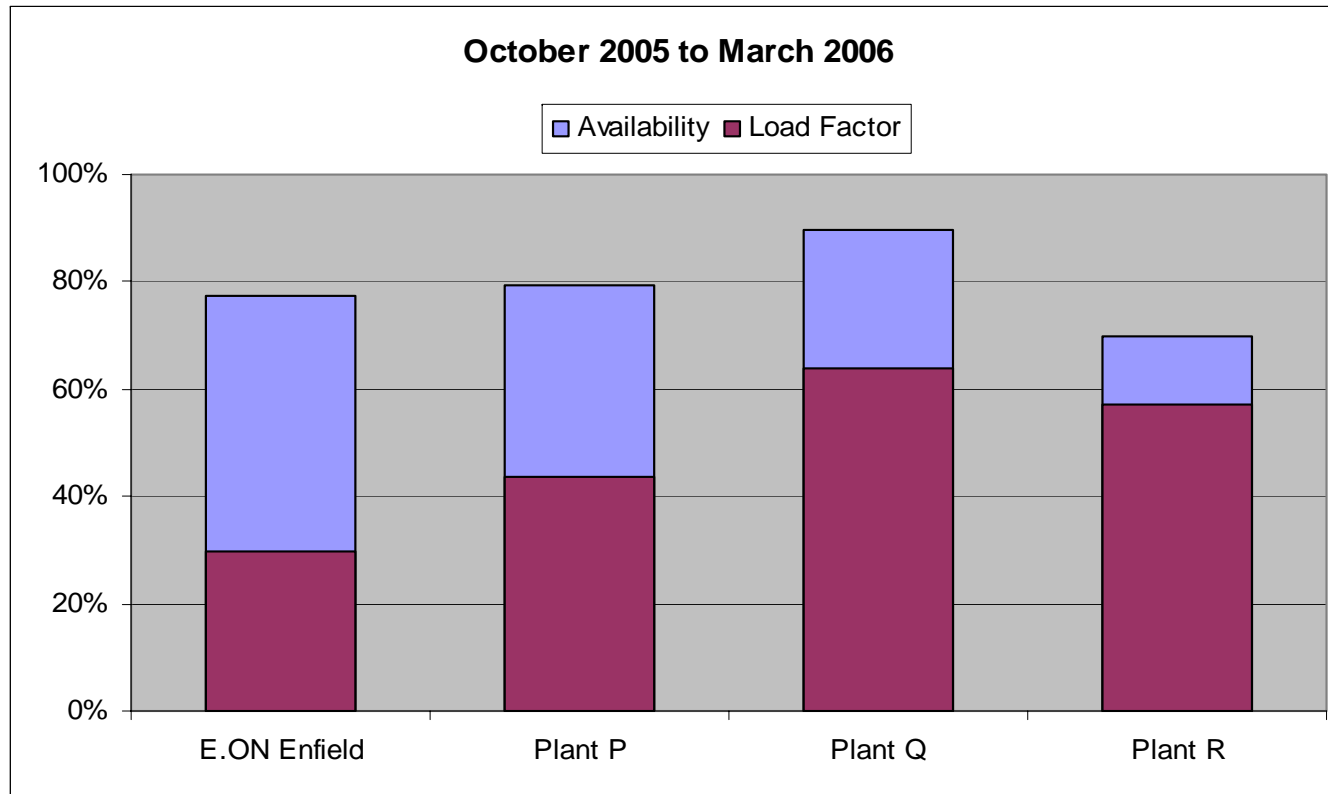
- Electricity and gas market prices.
- Cost of alternative fuels.
- Environmental constraints may limit the extent of fuel switching.
- Ministerial directions to operate particular generation plant in the case of an electricity emergency.
- The values large users place on lost production.
- Routes to market to facilitate demand side response.
- Belief that a gas emergency is imminent.

## Generator Example 1 – comparison of demand side response for similar plant. Winter 05/06



**“Two similar units operating flexibly, two inflexibly”**

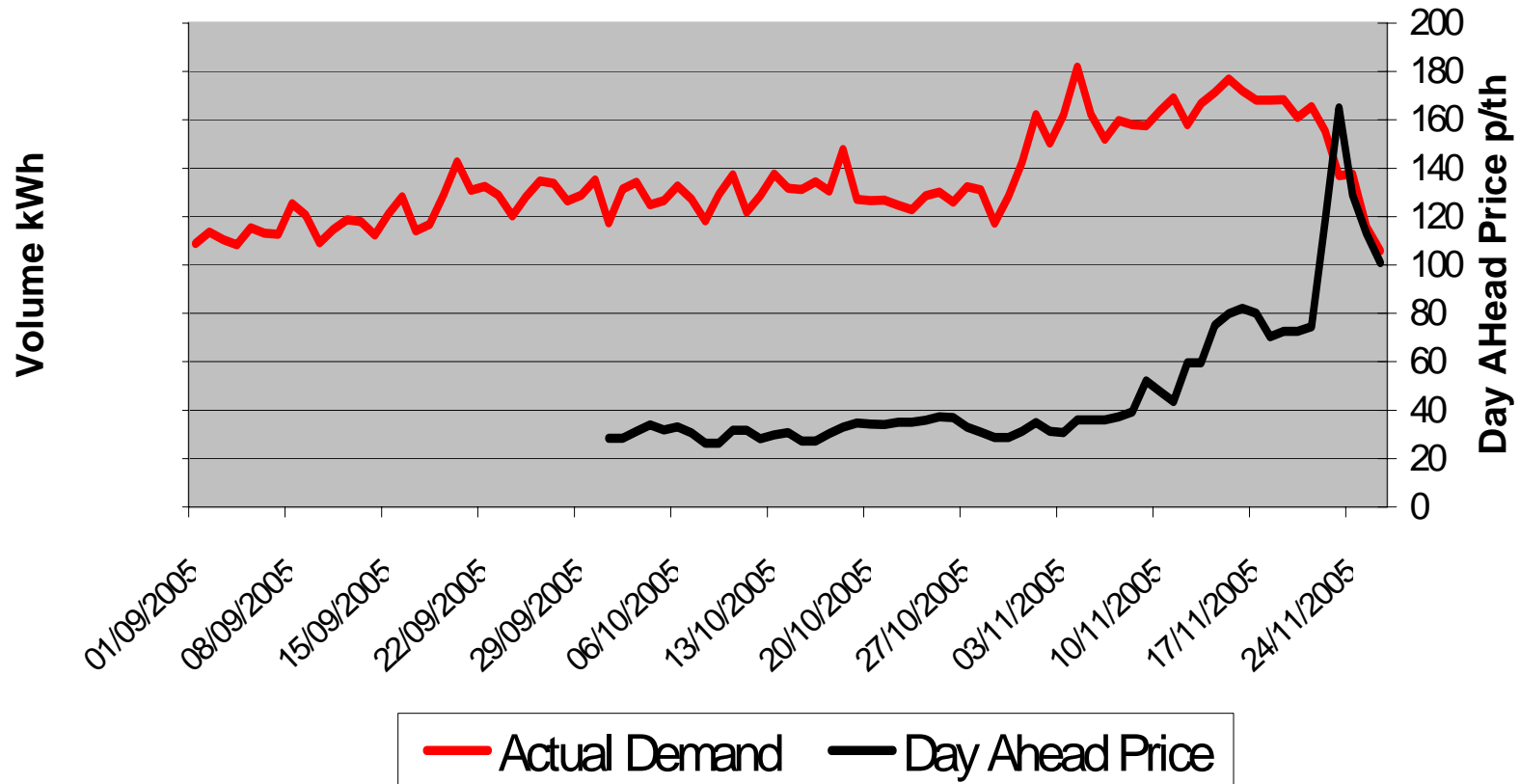
## Generator Example 2 – comparison of demand side response for similar plant. Winter 05/06



**“And again for another CCGT type”**

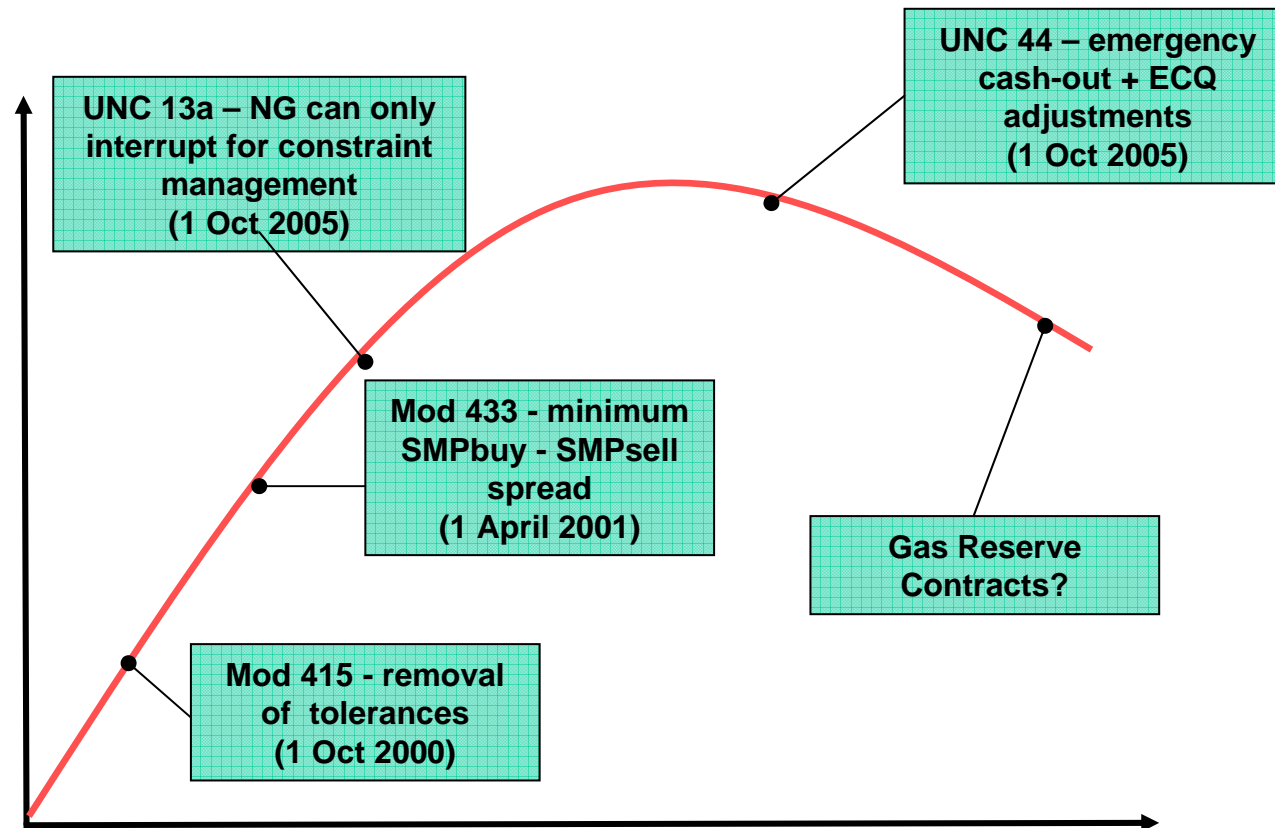
# November 2005 E.ON Customer demand side response - day ahead priced product

## Allocation Vs Day Ahead Price



# Incentives on market participants

**Shipper  
Incentives  
to avoid an  
Emergency**



## Energy Balancing – demarcation of roles

### Standard market conditions

- National Grid can only curtail demand for ‘constraint management’ reasons.
- Shippers are collectively responsible for energy balancing (‘commercial interruption’ and other ‘demand side’ response)

### Emergency procedures

- Network Emergency Coordinator can direct transporters to curtail demand:  
  
Stage 1: Interruptible  
Stage 3: Firm load shedding
- Shipper arrangements can continue until ‘overridden’ by transporters

## Why E.ON UK values demand side response

- Useful source of peak flexibility especially as we have a large domestic portfolio – competing with ‘swing’, imports and storage.
- Financially incentivised under the Uniform Network Code

### Normal Market

Marginal imbalance cash-out prices provide strong balancing incentives

### Emergency Conditions

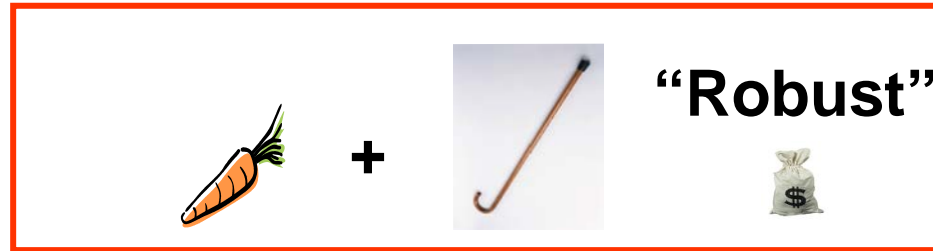
Cash-out price for ‘long’ shippers designed to bring ‘price sensitive’ gas to market (Get paid prevailing system average price at time emergency is called).

Cash-out price penalises ‘short’ shippers (pay system marginal buy price at time emergency is called)

Adjustment to balance position if National Grid curtails demand before shipper (emergency curtailment quantity).

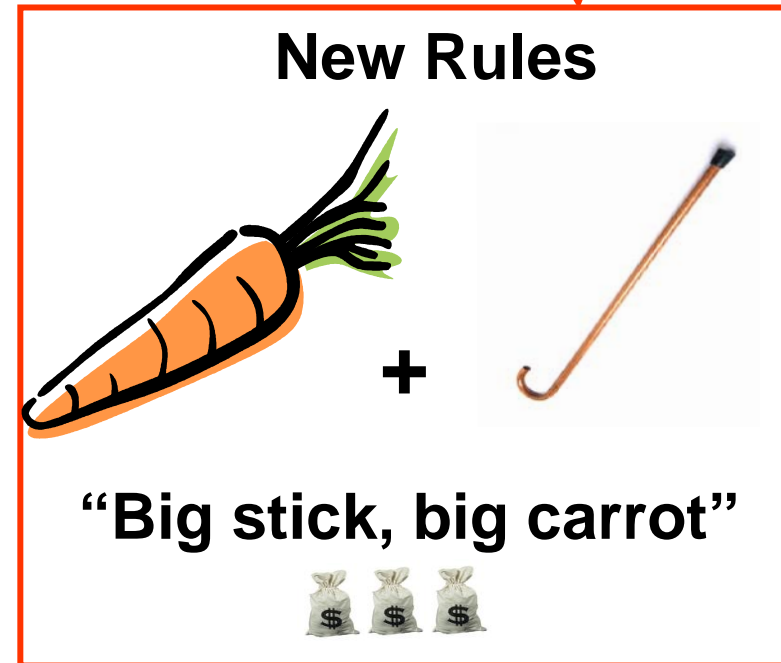
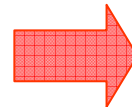
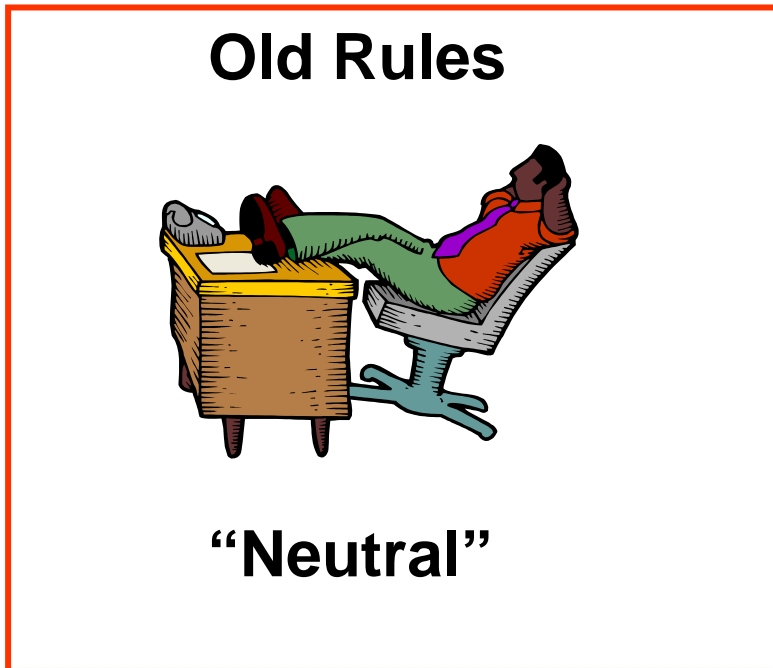
Financial  
Incentives  
On shippers

### Standard Market Conditions



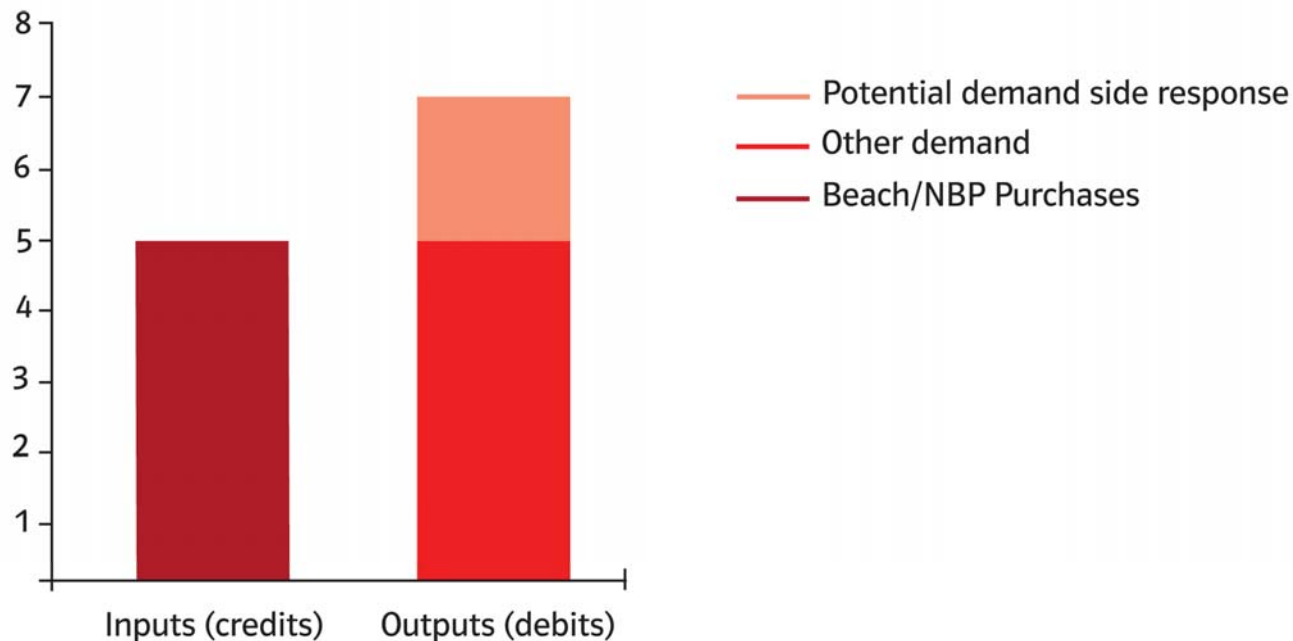
Value for customers?

### Emergency Conditions



## Actual Shipper Daily Imbalance (Immediately prior to an emergency)

Prices? SMP buy = £4.95/th. SAP = £4.00/th. SMP sell = £3.00/th

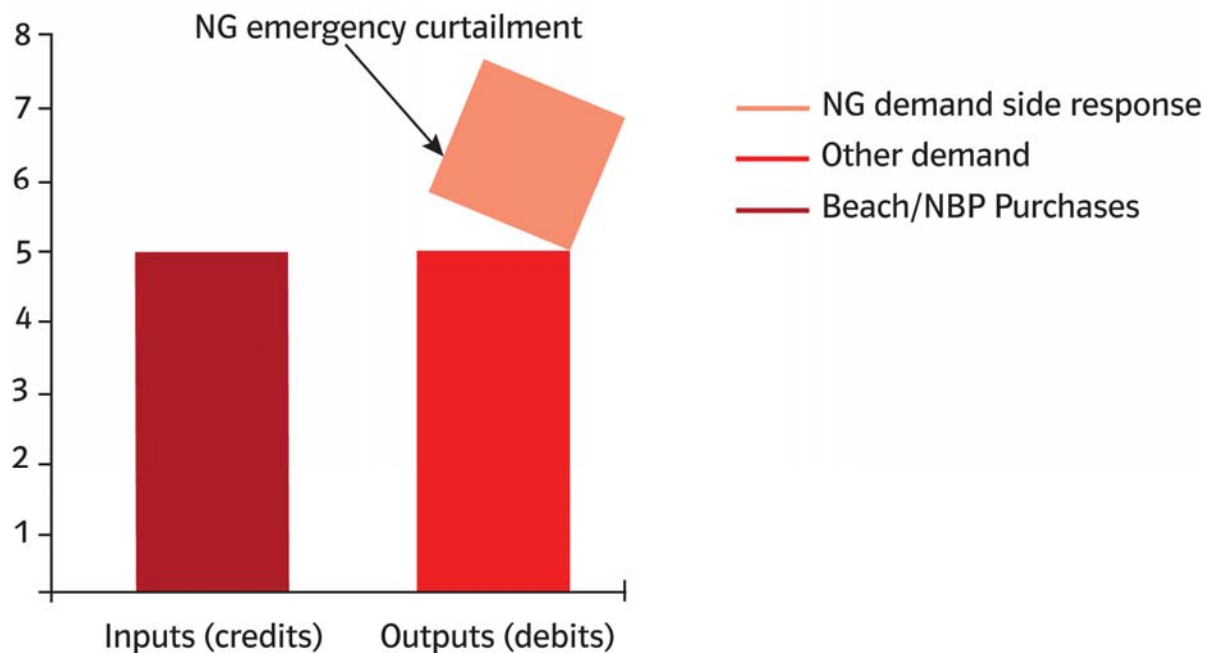


**Expected financial exposure = - £9.9m**

i.e. short by 2m units cashed-out at SMP buy

## Anticipated Shipper Daily Imbalance (Following an emergency but Pre Mod 44)

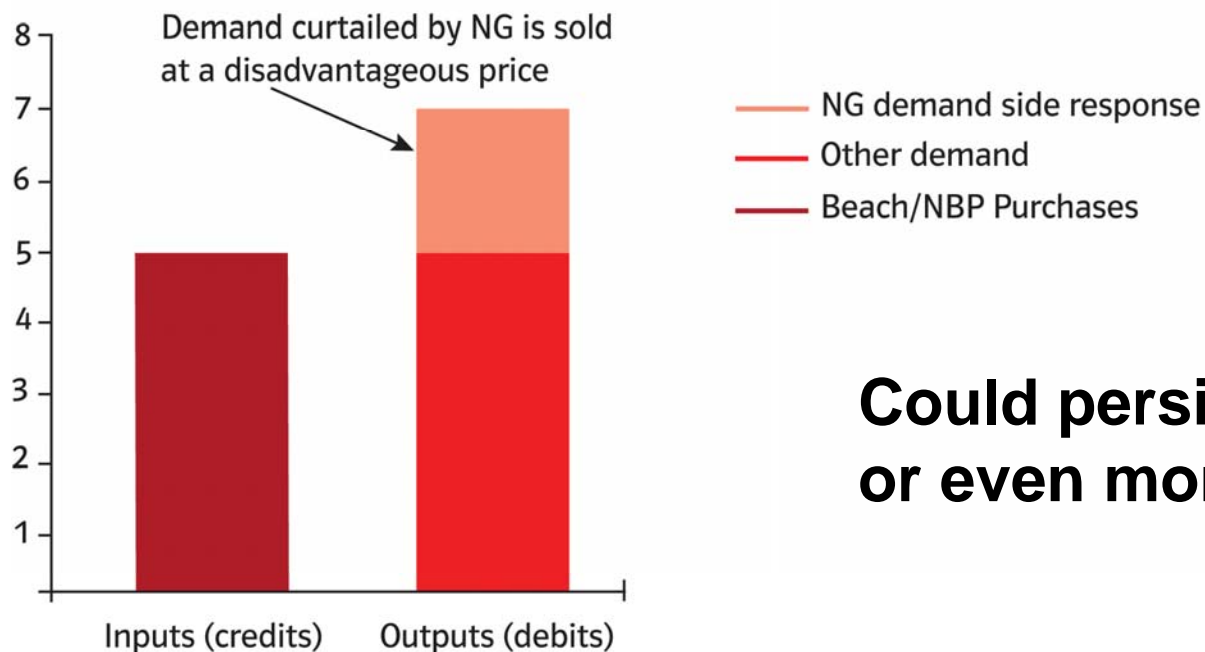
Prices? Single price 30 day SAP = £1.50/th



**Actual financial exposure = £0m**

## Actual Shipper Daily Imbalance (Following an emergency – new rules)

Prices? SMP buy = £5.00/th. 30 day SAP = £1.50/th



**Could persist for weeks  
or even months!**

**Actual financial exposure = -£7m**

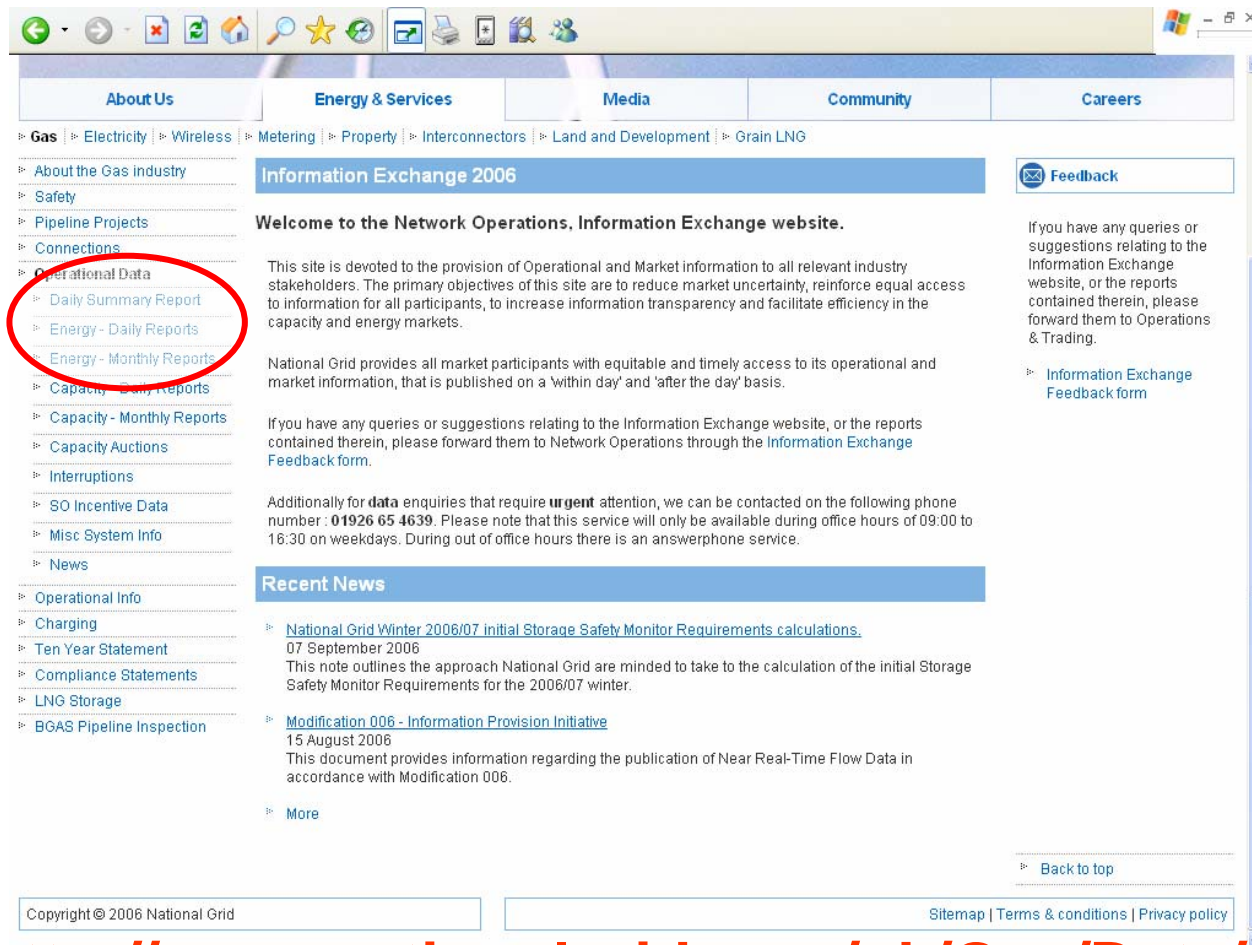
i.e. 'short' by 2m units cashed-out at SMP buy less payment for 2m ECQ trade at 30 Day SAP (-£10m +£3m)

## Useful Market Information

### Key indicators of a likely shortage

- Imbalance Prices
- Gas Balancing Alert
- Storage Usage
- Other information to help customers assess the supply-demand balance

# National Grid Website



The screenshot shows a web browser window displaying the National Grid website. The browser's address bar is empty. The website has a blue header with navigation tabs: 'About Us', 'Energy & Services', 'Media', 'Community', and 'Careers'. Below the header is a breadcrumb trail: 'Gas > Electricity > Wireless > Metering > Property > Interconnectors > Land and Development > Grain LNG'. A left-hand navigation menu lists various categories, with 'Operational Data' circled in red. Under 'Operational Data', the following links are listed: 'Daily Summary Report', 'Energy - Daily Reports', 'Energy - Monthly Reports', 'Capacity - Daily Reports', 'Capacity - Monthly Reports', 'Capacity Auctions', 'Interruptions', 'SO Incentive Data', 'Misc System Info', 'News', 'Operational Info', 'Charging', 'Ten Year Statement', 'Compliance Statements', 'LNG Storage', and 'BGAS Pipeline Inspection'. The main content area is titled 'Information Exchange 2006' and contains a welcome message: 'Welcome to the Network Operations. Information Exchange website. This site is devoted to the provision of Operational and Market information to all relevant industry stakeholders. The primary objectives of this site are to reduce market uncertainty, reinforce equal access to information for all participants, to increase information transparency and facilitate efficiency in the capacity and energy markets. National Grid provides all market participants with equitable and timely access to its operational and market information, that is published on a 'within day' and 'after the day' basis. If you have any queries or suggestions relating to the Information Exchange website, or the reports contained therein, please forward them to Network Operations through the Information Exchange Feedback form. Additionally for data enquiries that require urgent attention, we can be contacted on the following phone number : 01926 65 4639. Please note that this service will only be available during office hours of 09:00 to 16:30 on weekdays. During out of office hours there is an answerphone service.' Below this is a 'Recent News' section with two items: 'National Grid Winter 2006/07 initial Storage Safety Monitor Requirements calculations' (dated 07 September 2006) and 'Modification 006 - Information Provision Initiative' (dated 15 August 2006). A 'More' link is provided at the end of the news section. On the right side, there is a 'Feedback' form with a message: 'If you have any queries or suggestions relating to the Information Exchange website, or the reports contained therein, please forward them to Operations & Trading.' and a link to the 'Information Exchange Feedback form'. At the bottom of the page, there is a 'Back to top' link. The footer contains copyright information: 'Copyright © 2006 National Grid' and links to 'Sitemap', 'Terms & conditions', and 'Privacy policy'.

<http://www.nationalgrid.com/uk/Gas/Data/>

# Imbalance Prices

PRICE

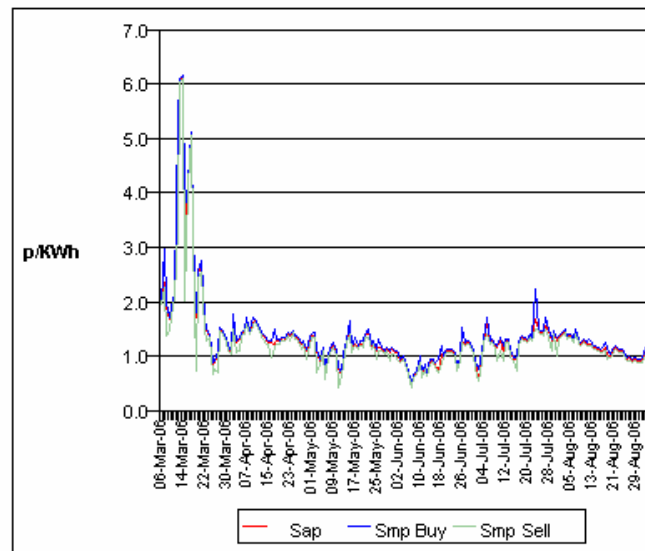
	SAP 05/09/06	SMP Buy	SMP Sell	7 day average
Price (p/KWh)	1.0850	1.1942	1.0526	0.9847

[Price Graph](#)

Definitions

Click [here](#) for NORD01 price report

PRICE



Definitions

[Return to Price Table](#)

## Gas Balancing Alert

**“Forecast Total System Demand is greater than or equal to the anticipated available supplies.”**

- Designed to be a genuine indication of gas shortage (not ‘crying wolf’)
- Signals demand side response is needed to avert an emergency

DAILY SUMMARY Current Gas day: Wednesday, 6-Sep-2006

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GAS BALANCING ALERT

Tomorrow 07/09/06	NONE	Today 06/09/06	NONE
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[Click here](#) for Gas Balancing Alert history

[Click here](#) for available Multiday Trade Information

ANS WARNINGS (Relevant ones only)

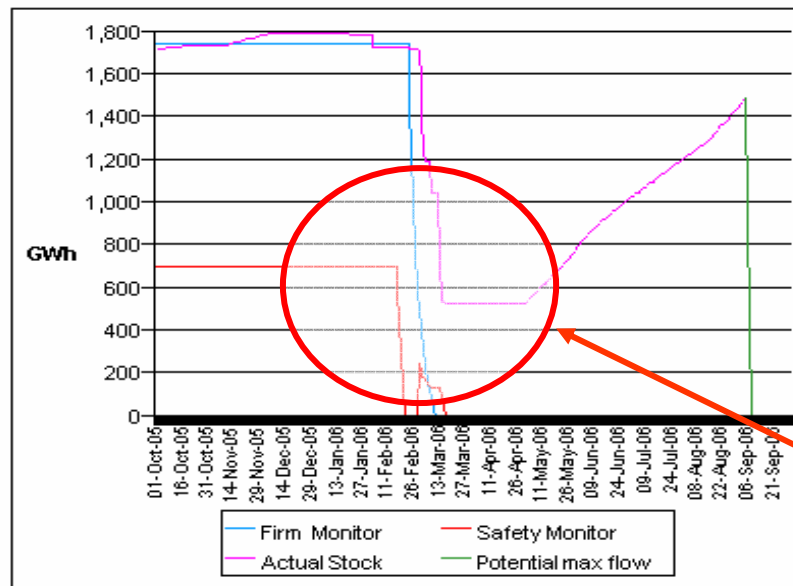
Today 06/09/06	NONE
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[Click here](#) for ANS warnings history

[Definitions](#)

# Storage Usage – how are stocks being depleted?

## SHORT RANGE STORAGE



**Is breach of Safety monitor Likely?**

Definitions

[Return to Storage Table](#)

## STORAGE

	Opening Stock levels							
Range	04/09/06 GWh	05/09/06 GWh	Safety Monitor GWh	Max flow (GWh/day)	Days left	Ave flow (GWh/day)	Days left	
Short	1,474	1,483 (89%)	0 (0%)	526		0	>100	06/09/06 13:27
Medium	7,505	7,451 (102%)	0 (0%)	276		17	>100	06/09/06 13:27
Long	31,564	31,716 (96%)	0 (0%)	455		0	>100	06/09/06 13:27

[Storage Graphs](#)

Definitions

Click [here](#) for storage monitor details

## Your Supplier requires the following Emergency Contact Details:

- If the site is manned 24 hours per day:
  - ⇒ the name and/or job titles of at least 1 and max. 3 representatives
  - ⇒ at least 1 and max. 3 telephone numbers for each representative
  - ⇒ 1 fax number capable of receiving transmissions 24 hours a day
- If the site not manned 24 hours per day:
  - ⇒ the name and/or job titles of 3 representatives
  - ⇒ at least 1 and max. 3 telephone numbers for each representative
  - ⇒ 1 fax number capable of receiving transmissions 24 hours a day
- Contact must be able to arrange for affected sites to stop using gas
- E.ON UK customers can notify changes at  
[www.eon-business.org.uk/emergencycontacts](http://www.eon-business.org.uk/emergencycontacts)

## Feedback from Exercise Neptune – 6 & 7 September

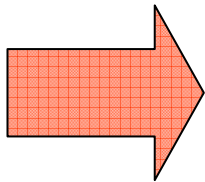
- Key area under test was Emergency interruption and Firm Load Shedding
- All E.ON Energy Interruptible sites were telephoned to check contact details and their ability to interrupt in an emergency

131 sites: 102 successful; 1 unable to contact; 14 contacted with difficulty; 4 sites could not turn off in less than 4 hours; 3 sites could not / did not know how to turn off; 6 sites weren't taking gas at that time and 1 site had left E.ON Energy

**Better performance but room for improvement**

## Demand side products from your supplier

- Day ahead indexed prices – customer ‘self interruption’ when price too high?
- Emergency Sell Back



**Customer sets price at which curtailment can take place**

## Emergency Sell back product

- Applies only when a Gas Balancing Alert is called or the NEC has invoked emergency procedures (also other predefined 'emergency' conditions specified by and agreed with customer).
- Customer sets an offer price and volume in advance at which it is prepared to allow curtailment.
- Shipper can exercise option to curtail.
- Pass through of imbalance exposure for if customer fails to curtail demand.
- Available to our larger daily metered customers.

## Customer dilemma

INMAGINE™  
REPAIR THE BUSINESS



Shut down +  
Cash now

OR



Chance it, and get nothing  
in an emergency