Gas Market
Demand side dynamics

Jon Fieldsend
Total Gas & Power Ltd

Total Gas & Power in the UK

- **Gas and Power Supplier**
  - Operated under the Elf Business Energy brand.
  - Industrial and Commercial customer base across all I&C segments.
  - 2005 gas deliveries c. 5.6 Bcm (2 billion therms).
  - Growing niche position in power with flexible products.
- **Gas and Power Trader**
  - Significant UK, USA and European trading activities in Gas & Power.
  - LNG Trading from London
- **UK operating locations**
  - Head office in Canary Wharf London.
  - Elf Business Energy main administration centre in Redhill, Surrey
  - Sales office in Leeds, Thorpe Park.

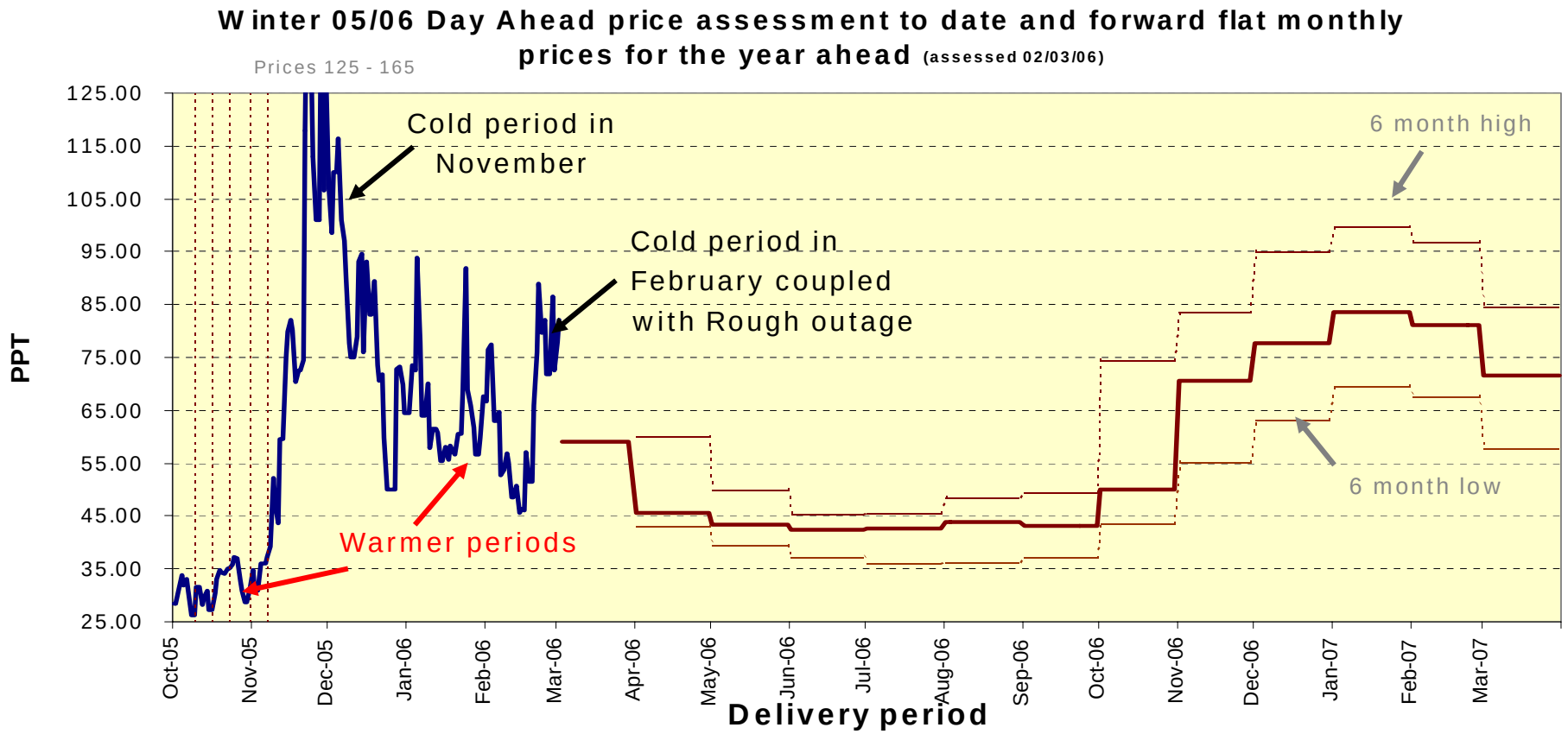
Presentation contents

- **Market and environmental characteristics**
  - Prices and volatility.
  - Weather winter 2005 / 06.
  - System demand overall.
- **Demand side response, what have EBE seen occur in winter 2005/6.**
  - Elf Business Energy DM portfolio experience.
  - Elf Business Energy large NDM portfolio experience.
- **Demand side response - choices and issues**
  - Choosing when and how to buy, linked to demand management.
  - Making demand side response and energy management a way of creating competitive advantage for customers.
  - Potential barriers to further demand side response.
  - Supplier response - innovation, flexible products and ways of buying.

TOTAL

Market and environmental characteristics

Market and Environment - Prices and volatility

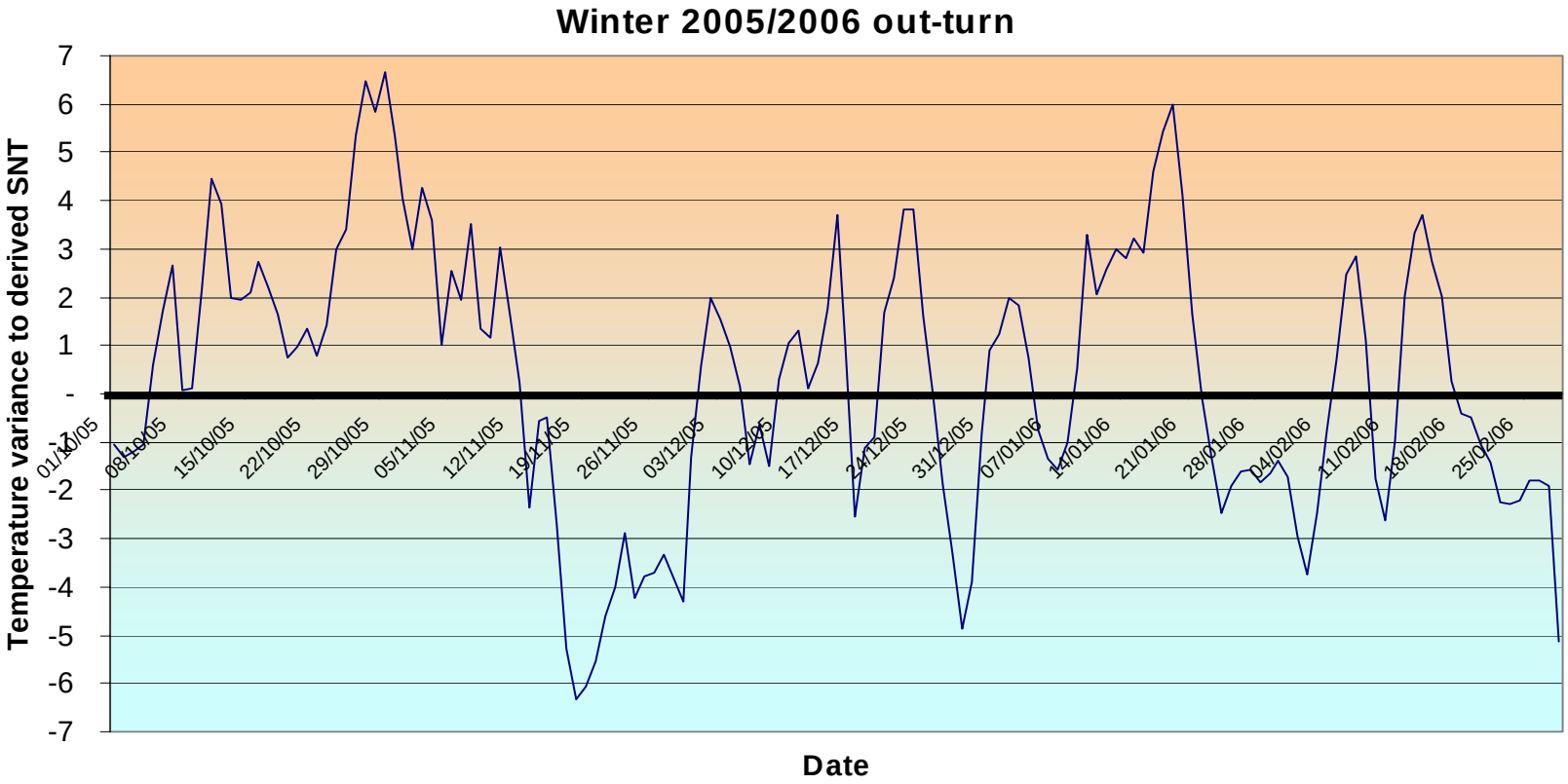


- **Prompt prices have been volatile in winter 2005 / 06, with periods of strong prices and periods of comparatively softer prices.**

- **The current forward flat curve for gas delivery in the coming winter (2006 / 07) has (i) been very volatile, trading in a wide range, (ii) is currently higher than 05/06 winter curve traded forward during the majority of 2005 pre the new gas year.**

Market and environment - The UK weather - winter 2005/06

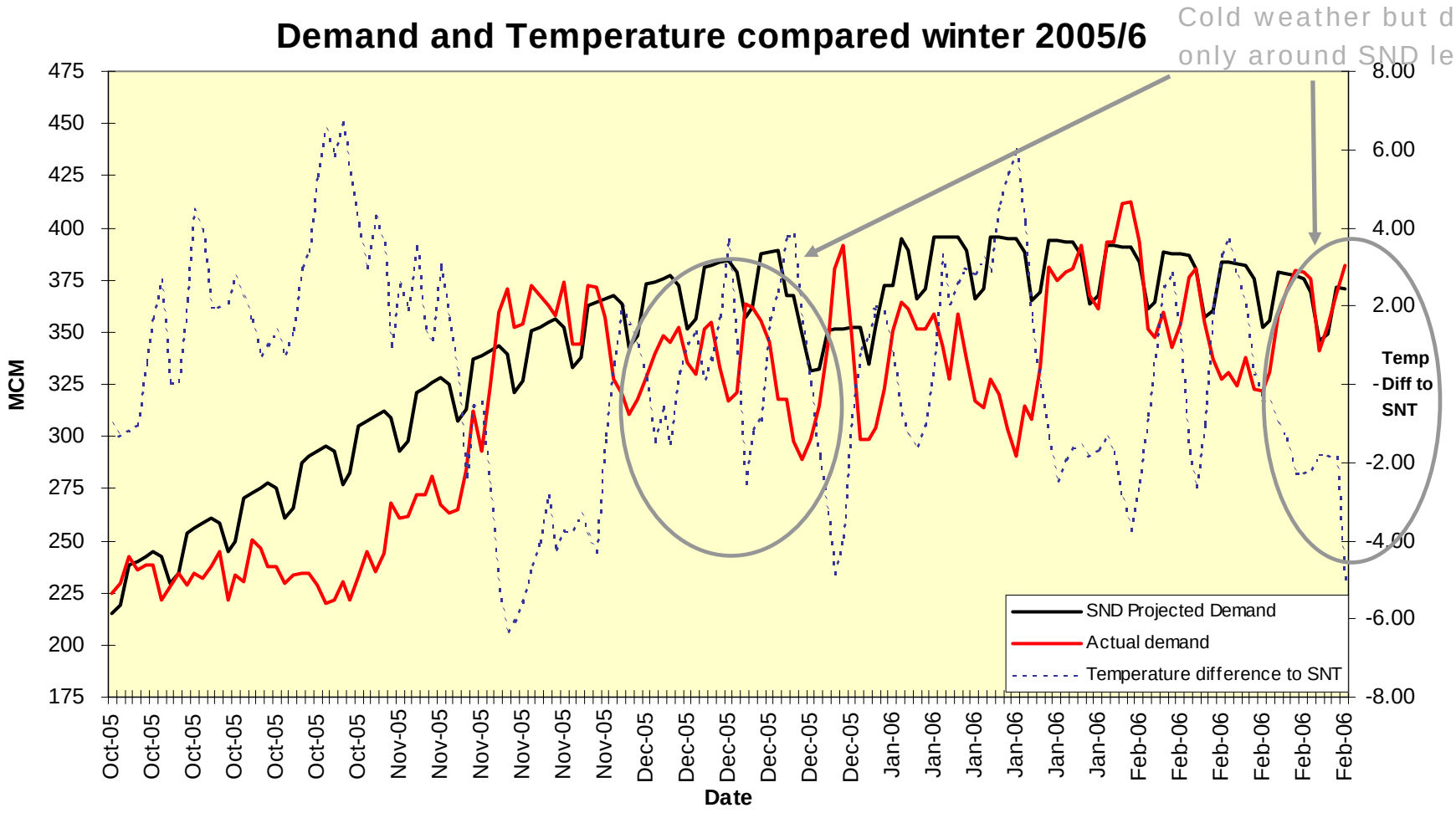
- **Consistently through the late Summer, Autumn and through into mid winter official weather forecasting bodies predicted a colder than average winter. Seized upon by the media this became a public domain topic of debate. What has occurred to date?**



- **A very warm start In October and early November, with a sudden shock entry to winter in November, returning to an average December, warmer January and cool February.**

- **A colder winter than in recent years, averaging around SNT overall to date.**

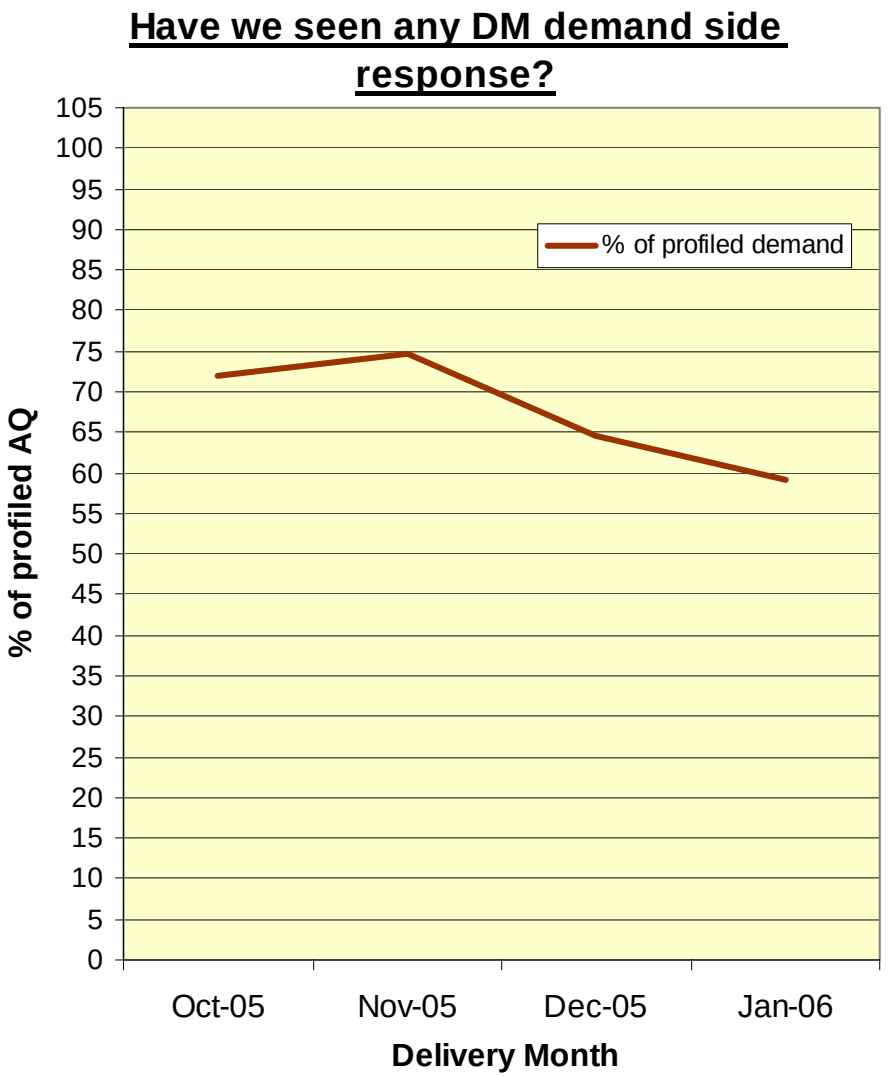
Market and environment:
Overall estimated system demand compared to SND and weather



- **There does appear to have been significant demand response / reduction, during winter 2005 / 06 from what would have been expected, but where has it come from?**

Demand side response
what have EBE seen occur in winter 2005/6

Demand side response - EBE DM experience

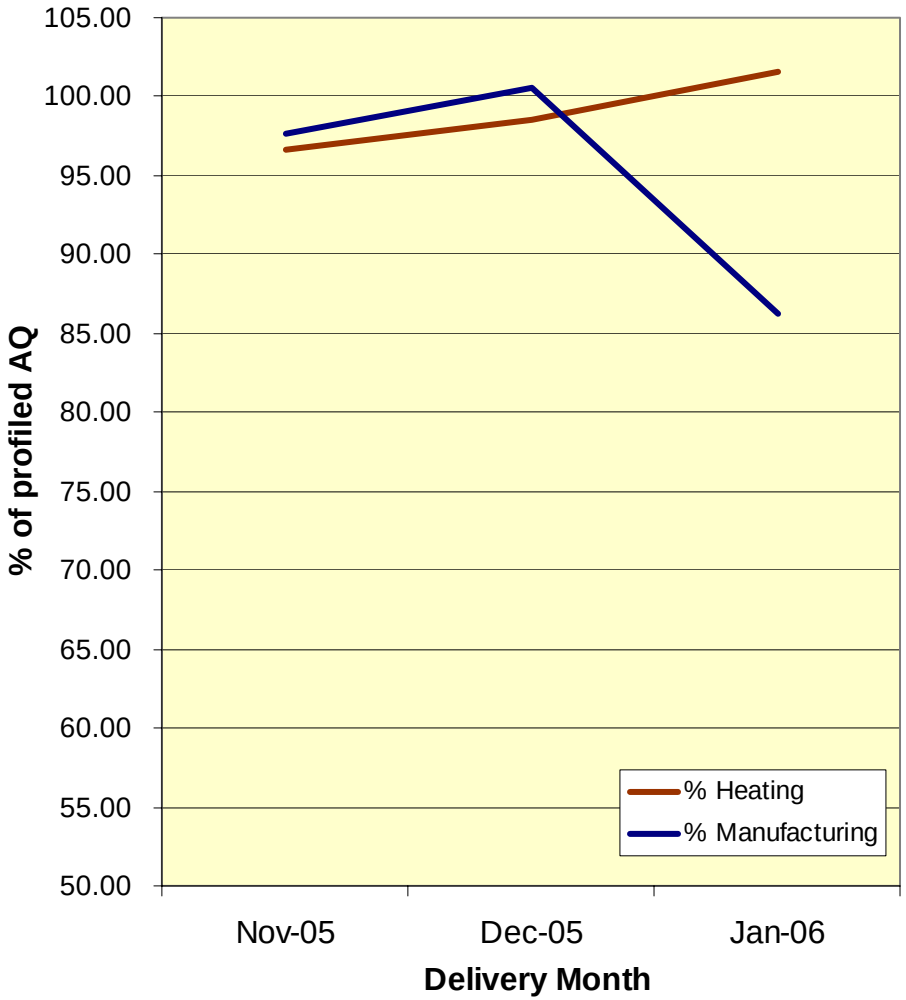


(Analysis taken from EBE portfolio, sample of DM consumption meters)

- **There has been significant Power generation response during winter 2005 / 06 reflecting relative gas prices and coal / other alternative fuel prices**
- **In addition to the Power Generation response seen in the market during winter 2005 / 06, EBE have seen significant Daily Metered demand reduction from expected profiled usage.**
- Some of this demand reduction appears to have been proactively managed by the customers before the onset of winter, through production scheduling, flexible buying and flexible products, use of alternative fuels etc, whilst some has been more reactive in its nature.
- The main reduction in demand appears to have come from manufacturing and chemicals sectors, rather than service sector, lighter industry or heating load.

Demand side response - EBE NDM experience

Have we seen any NDM demand side response?



(Analysis taken from EBE portfolio, sample of larger NDM consumption meters)

Maybe recently….

From analysis of consumption from our larger NDM customers the following patterns seem to have emerged during winter 05/06

- Heating load has behaved as expected, reacting to temperature and holiday periods, with no obvious behaviour change.
- Manufacturing load behaved as expected in November and December, but in January and it appears February gas consumption has been lower than we would have expected from these customers.
- The change could of course be co-incidental, driven by economics conditions or the sample not being representative.

Demand side response choices and issues

Choosing when and how you buy.

Buying range - flat gas fixed during period

01/07/05 to 30/09/05

Delivery month	Low ppt	High ppt
Oct-05	35.0	45.5
Nov-05	48.9	63.5
Dec-05	60.1	87.0
Jan-06	67.2	106.5
Feb-06	65.3	104.8
	(26/09)	*(12/07)*

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Buying individual flat gas months during the period 01/07/05 to the last working day of the month prior to delivery

Delivery month	Low ppt	High ppt
Oct-05	34.7	47.0
Nov-05	43.8	63.8
Dec-05	56.6	116.3
Jan-06	67.2	117.5
Feb-06	61.4	110.1

Buying Flat Day Ahead for the whole volume

Delivery month	Flat DA
Oct-05	31.5
Nov-05	75.0
Dec-05	80.8
Jan-06	64.6
Feb-06	63.2

BEST BUYING CHOICE

Delivery month	Flat price	Instrument
Oct-05	31.5	Day Ahead
Nov-05	43.8	individual month close to delivery
Dec-05	56.6	individual month close to delivery
Jan-06	64.6	Day Ahead
Feb-06	63.2	individual month close to delivery

1k therms per day = £78k

WORST BUYING CHOICE

Delivery month	Flat price	Instrument
Oct-05	47.0	buying in 01/07 - 30/09
Nov-05	63.8	buying in 01/07 - 30/09
Dec-05	116.3	individual month buying in Nov
Jan-06	117.5	individual month buying in Nov
Feb-06	110.1	individual month buying in Nov

1k therms per day = £140k

TOTAL

Benefit of hindsight or a crystal ball would be useful, but in their absence...

Theoretical Example of a 1,000 therms per day, none weather sensitive company

- Buying fixed price during the period 01/07 to 30/09 for delivery October 05 to February 06 means the best and worst a buyer would have paid is: £83k to £123k
- Buts lets say they know they will use at least 500 therms each day and want certainty. They think they will use another 250 therms each day but can wait to closer to the month to buy, finally they can be flexible and move production around during the month up or down from 750 per day to 1250 per day by working longer or shorter production shifts etc

- **So** they create a proactive, flexible buying strategy and production schedule that fits their business. (i) They buy 500 therms per day at the average of the period 01/07 to 30/09 (ii) They buy 250 per day on the month ahead before delivery (iii) They buy 250 per day on Day Ahead but avoid the high price days and run 15 days per month *500. What price do they pay?

500 per day purchased fixed price:	Range £41.5k to £61.5k / average £51.5k
250 per day purchased on month ahead average	Price £24.5k
500 per day for 15 low price days in each month	Price £18.6k

Min price £84.6k average price achieved £94.6k Max price 104.6k

If a customer combines flexible buying strategies and flexible energy use,they can achieve both cost efficiency AND demand side response in constrained periods

Potential barriers and constraints:

NDM example (1) - Manufacturing company, no heating sensitivity

Manufacturing example	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
SMP price	35	45	45	45	80	115	50	35	35	25
profiled consumption	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Actual consumption	1,000	1,000	1,000	1,000	0	0	1,000	1,000	1,000	1,000
Start Meter read	0									
End meter read										8000
Reconciled gas	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200
Gas supplier charged	800	800	800	800	800	800	800	800	800	800

Ave Price 39.4

Ave Price 51.0

In this example the company are proactively managing their demand in relation to market prompt pricing. They use 1,000 therms a day but turn off on two days in the period when market prices are high.

The Supplier will be nominated gas to input into the system by NGG on a daily basis based on the profiles associated with the NDM customer (AQ, LDZ, EUC etc). The process does not have the data or mechanisms to recognise on the days this customer turns down that they specifically have done so.

When the customer has a meter read for the period it will reflect that their plant did not consume during the period, but it will not reflect the actual days it did not consume. Instead the supplier and therefore the customer will be credited back the gas smeared over the whole period at a smeared System Marginal Price.

The NDM reconciliation regime, due to this smearing effect, limits the financial benefit and thus incentive of these customers turning down in times of high price / demand

Simplified example designed to present the core of the issue. The example is not an exact representation of the full detailed process in operation.

TOTAL

Potential barriers and constraints:
NDM example (2) AMR

- **The potential of Automated Meter Reading (AMR) technology to improve customer's ability to (i) manage their demand (ii) implement and see benefits of energy management / efficiency programs (iii) gain economic benefits in their energy buying, is enormous.**

- **EBE see three key barriers to this**
  - The industry needs to educate the user community into the benefits of AMR and then Suppliers need to launch flexible energy products that allow the customer to maximise these benefits.
  - There is maybe a need for financial incentives to help customers and suppliers invest in this technology
  - The NDM reconciliation regime needs to change in order to allow the potential financial benefits to be realised and thus support demand side management

Super market example	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
AMR consumption	1,000	1,050	1,000	1,020	1,000	1,000	1,000	7,070
NDM profiled usage	1,020	1,060	1,100	1,100	1,050	900	910	7,140
Adjusted for weather / reads	1,010	1,050	1,090	1,090	1,040	890	900	7,070
Difference	-10	0	-90	-70	-40	110	100	0

- **The example above shows that there will be two issues:**
  - The NDM generic profiles may not fit the data the customer's AMR reads say they have.
  - The gas nomination and reconciliation process will not currently match the daily reads that AMR will provide the customer with.

Simplified example designed to present the core of the issue. The example is not an exact representation of the full detailed process in operation.

Our Conclusions

- Customers need to see energy management as business critical and having potential competitive advantage.

- Customers need to think beyond choosing one day in the year on which to buy their energy and buy more flexibly, matching their business dynamics to how they buy. They also need to have the necessary data and understanding available to them to make the appropriate energy decisions for their businesses

- Suppliers need to offer a range of flexible products and buying options to enable each customer to manage their energy to their specific needs.

- The potential of AMR and energy efficiency programs in the I&C segment is significant and can help stimulate reductions in carbon emissions and improved cost management for UK plc. Programs in some sectors to date have lacked effectiveness. Suppliers are well placed to drive AMR and Energy Efficiency in the I&C sector with correct incentives.

- Elements of the gas balancing and reconciliation regime are potential barriers to demand side response and energy optimisation amongst smaller industrial and commercial users.

EBE's initiatives and approach

- **To offer flexible products to all sectors and customer sizes to allow them to buy flexibly:**
  - Break their annual demand into monthly segments / break their monthly demand down into several trenches.
  - To buy on the curve, closer to month of delivery, Day Ahead or take on day System Buy / Sell prices.
  - To allow a customer to be as proactively involved in the buying process as they want or to agree with them up front buying patterns and pricing mechanisms that we then transact.

- **For larger customers to allow them further flexibility**
  - To buy on live prices (or sell - subject to FSA regulations) ahead of delivery or on the day of delivery.
  - To gain the benefit of any gas they have purchased that they don't use on a day in high demand / price periods or sell back in the event of a likely gas emergency.

- **In 2006 we will be enhancing our offerings and services to include**
  - Much more flexibility on the length of contracts people choose to sign up to.
  - To work to advance Automated Metering technology (AMR).
  - To work with customers on energy efficiency programs and data to support them.
  - To launch services to give customers access to more data required to help them manage their energy consumption, buying and demand management.

Thank you for listening today.

Any Questions?