

The background of the slide features a large, semi-transparent white arrow pointing from the left towards the right. Behind the arrow, there is a faint image of a modern building with a glass facade on the left and a close-up of a gas burner with a blue flame on the right.

Winter Outlook Seminar Oct 14th 2009

Kersti Berge, GB Markets

Agenda

- **08:30** **Registration & Coffee**
- **09:15** **Ofgem intro and overview**, Kersti Berge
- **09:30** **EDF**, Cathy McClay, Power Market
- **09:55** **Wood Mackenzie**, Graham Freeman, Global Gas Outlook
- **10:20** **Centrica Storage**, James Lawson, UK Storage Summary
- **10:45** **Q & A**
- **10:55** **Tea and Coffee**
- **11:15** **Scottish Power**, Stuart Noble, Prices & investment Signals
- **11:40** **National Grid**, Chris Train, Winter Outlook 2009/10
- **12:05** **Q & A**
- **12:30** **Closing Comments**,
- **12:40** **Tea and Coffee**

Ofgem: Security of Supply Monitoring & Analysis

This winter

Ongoing monitoring

Winter Outlook consultation – joint with NG and industry

Requesting information from suppliers on meeting peak gas demand

Medium term

Project Discovery

Energy Markets Outlook (with DECC)

Project Discovery

WHAT IS PROJECT DISCOVERY?

A review of medium term security of supply for GB.

WHY DID YOU LAUNCH DISCOVERY?

Significant changes in landscape of GB energy and climate change.

WHEN DID YOU START?

Launched in March 2009 as Ofgem fast track project.

WHEN WILL YOU CONCLUDE?

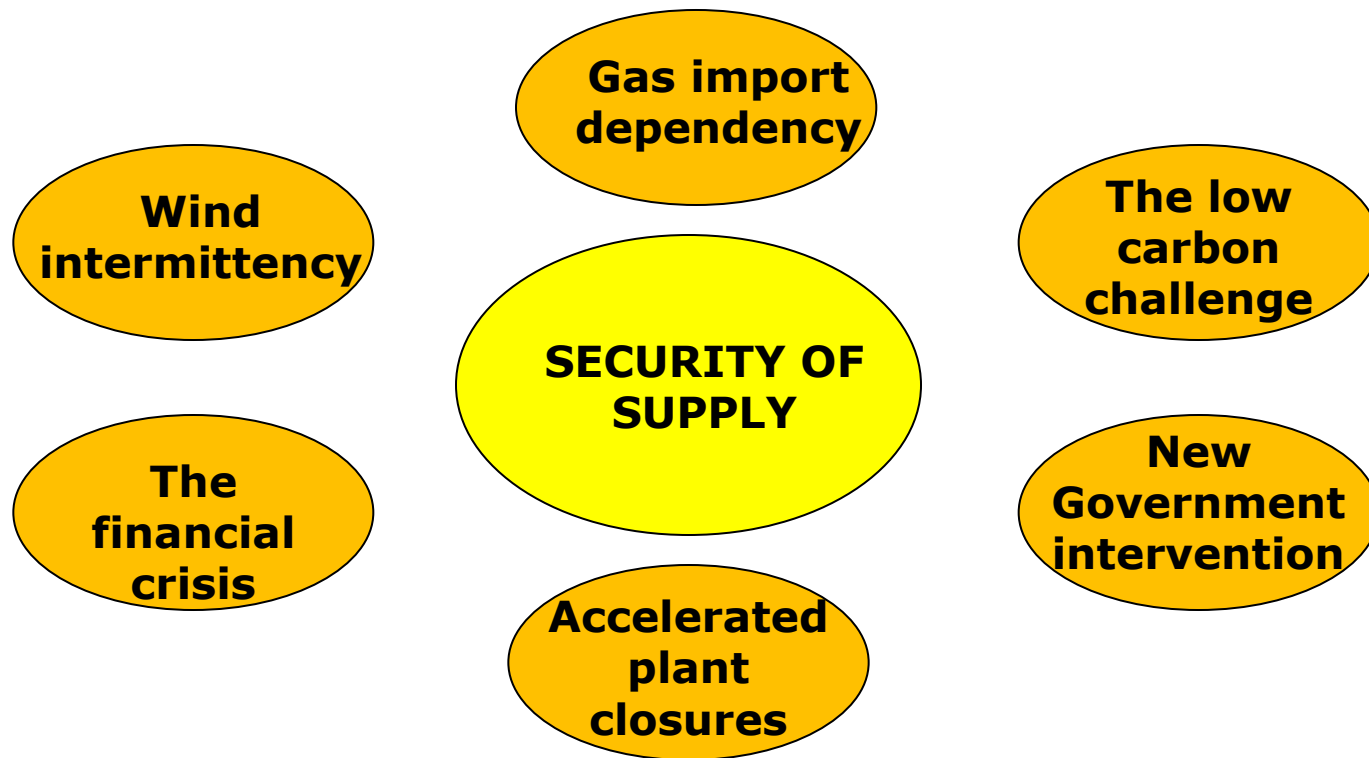
Full options and recommendations to DECC and public in early 2010.

WHAT DID YOU PUBLISH ON FRIDAY?

Critical milestone:
- We show our scenarios/data.
- We want views.

Project Discovery

Can GB markets deliver secure and sustainable energy supplies?



TESTS SEVERE AND COMPLEX

Ofgem's global scenarios

		Economic recovery	
		Rapid	Slow
Environmental action	Rapid	Green Transition	Green Stimulus
	Slow	Dash for Energy	Slow Growth

FOUR SCENARIOS REFLECTING KEY GLOBAL DRIVERS

Scenario Overview – Green Transition

In this scenario....

- There is a rapid economic recovery and significant new investment globally
- A global agreement on tackling climate change is reached
- Energy efficiency measures are effective
- New nuclear and CCS demonstration projects come on-line before 2020
- Gas prices are moderate, carbon prices are high, and coal prices are relatively low as demand is suppressed by the high carbon prices
- GB gas demand falls but electricity demand grows on the back of wider deployment of heat pumps and electric vehicles

Key features

- Gas imports increase until 2016 and then stabilise
- Diverse generation mix
- Risk from generation intermittency towards the end of the period due to high levels of wind
- 2020 renewables targets met: 30% electricity, 12% heat
- Carbon dioxide emissions from the electricity and gas sectors: down 33% from 2005 levels
- Domestic consumer bills: increase by about 23% by 2020
- Total investment costs 2009-2020: £200bn

Scenario Overview – Dash for Energy

In this scenario....

- Global economies bounce back strongly
- Security of supply concerns prevail over environmental concerns: there is no global agreement on tackling climate change
- Gas supply is tight and fuel prices high
- Investment is forthcoming but not always timely
- Significant expansion of CCGT generation capacity
- Planning and supply chain constraints prevent new nuclear plant becoming operational before 2020
- Planning delays push back storage investment

Key features

- Sharp increase in gas import dependence
- Gas increases its share of the generation mix
- Shortage of gas storage coincides with peak energy prices in 2015
- 2020 renewables targets are not met: 15% electricity, 4% heat
- Carbon dioxide emissions from the electricity and gas sector: down 12% from 2005 levels – insufficient to meet carbon budgets
- Domestic consumer bills: rise with high and volatile commodity prices, increasing over 60% by 2016 before falling back
- Total investment costs between 2009-2020: £110bn

Scenario Overview – Green Stimulus

In this scenario....

- There is a slow recovery from recession and restricted availability of finance
- A global agreement on tackling climate change is reached and governments implement 'green stimulus' measures
- Energy demand falls globally in the near term
- Fuel prices are relatively low
- The combination of relatively high carbon prices and direct government support to nuclear, CCS and large scale renewables promote rapid decarbonisation of the generation sector

Key features

- Gas imports increase until 2012 and then stabilise
- Lower gas prices favour gas-fired generation over coal
- Risk from generation intermittency towards the end of the period due to high levels of wind
- 2020 renewables targets met: 30% electricity, 12% heat
- Carbon dioxide emissions from the electricity and gas sectors: down 43% from 2005 levels
- Domestic consumer bills: increase by about 14% by 2020
- Total investment costs 2009-2020: £190bn

Scenario Overview – Slow Growth

In this scenario....

- Impact of recession and credit crisis continues
- Low levels of investment
- Low commodity and carbon prices, reducing incentives for renewables, nuclear and CCS
- Generation build is dominated by CCGTs
- Energy efficiency measures have limited impact but demand is low initially due to slow economic growth

Key features

- Increasing dependence on gas imports and gas-fired electricity generation
- Tight supply margins due to lack of investment when economic growth returns
- 2020 renewables targets are not met: 15% electricity, 4% heat
- Carbon dioxide emissions from the electricity and gas sector: down 18% from 2005 levels – insufficient to meet carbon budgets
- Domestic consumer bills: relatively low in early years but increase by about 22% by 2020 as market tightens
- Total investment costs between 2009-2020: £95bn.

STRESS TESTS

Stress test	Period	Today	Green Transition	Green Stimulus	Dash for Energy	Slow Growth
Re-direction of LNG supplies	1-in-20 severe winter					
Russia-Ukraine dispute	1-in-20 severe winter					
Bacton outage	1-in-20 peak day					
No wind output	1-in-20 peak day					
Electricity interconnectors fully exporting	1-in-20 peak day					

Low impact Moderate impact High impact

Insights from the scenario work

GB markets will be severely tested

- **Each scenario shows that energy supplies can be maintained, but the analysis exposes real risks to supplies, potential price rises and varying carbon impacts.**
- **Investment needs to be ramped up - up to £200 billion may be required by 2020.**
- **Consumer bills are likely to be higher:**
 - Carbon prices, fuel costs and occasional price spikes.
 - Investment requirements and environmental subsidies.
- **We highlight some specific risks to secure and sustainable energy supplies.**
 - Maintaining gas supplies in a severe winter is the biggest risk we see.
 - Investments need to be made in a timely fashion.
 - Gas dependency and intermittency in power generation will present a challenge.
 - Potential risks to meeting climate change objectives.

What comes next?

- **Are the current arrangements still good enough?**
- **Can market arrangements function adequately in the light of current and expected interventions?**
- **Can market arrangements still function adequately under increased dependence on international markets?**
- **Given the lessons from financial markets, is it sufficient to entrust security of supply risks entirely to market participants?**

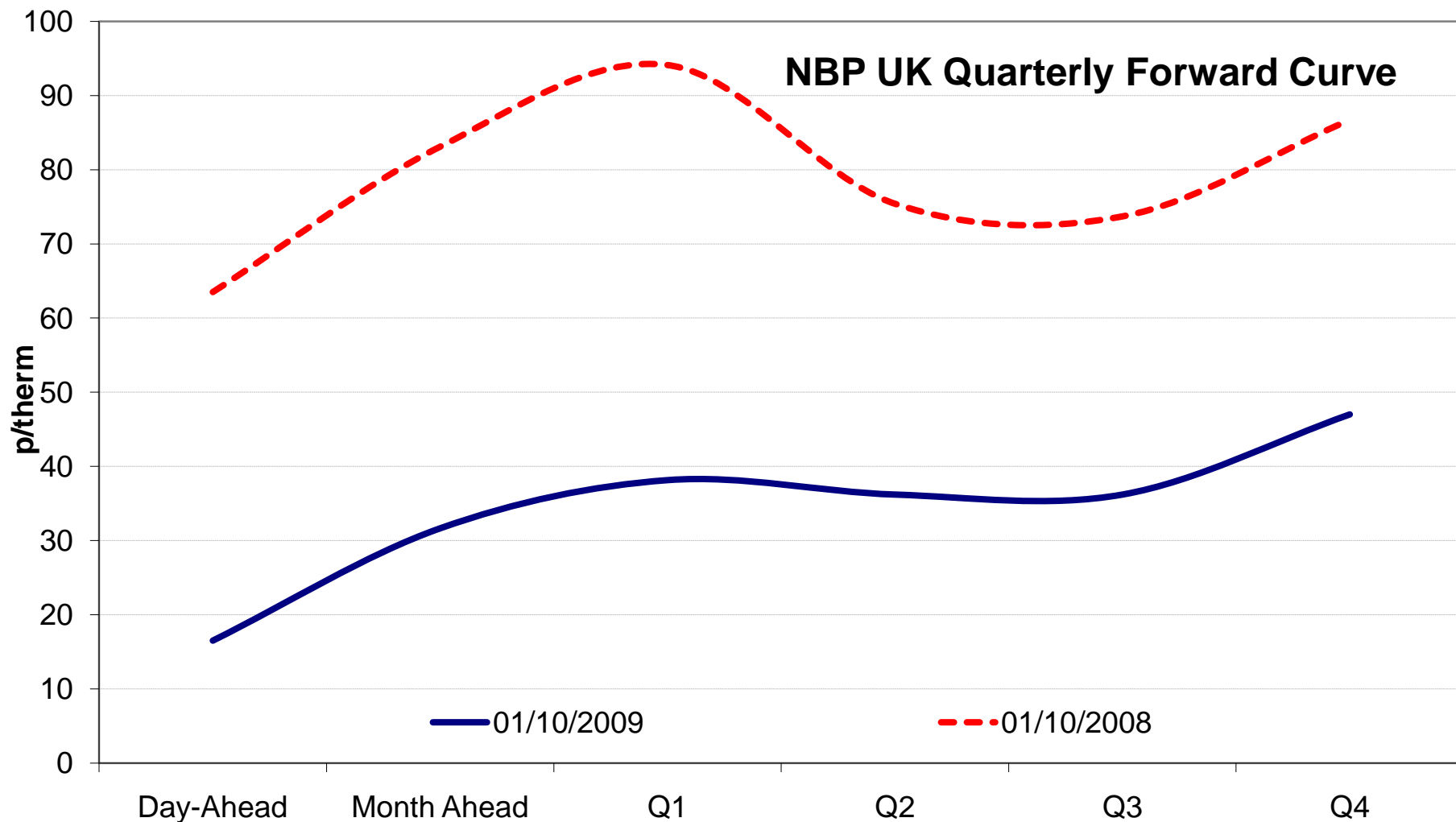
We expect to publish initial findings early next year

Please respond to consultation!

- **Project Discovery - Energy Market Scenarios document on Ofgem's website** www.ofgem.gov.uk
- **Please respond by 20th November on** project.discovery@ofgem.gov.uk

Turning to this winter.....

■ GB gas prices – more muted seasonal pattern



- Forward curve displaying less prompt upside potential compared to last year

