

**HELPING TO SHAPE THE ENERGY FUTURE OF GB CONSUMERS –
OFGEM'S PROJECT DISCOVERY**

**ALISTAIR BUCHANAN
CEO, OFGEM**

MARCH 2009

On behalf of GB consumers Ofgem is currently absorbed in looking ahead. Not only do our new duties to future consumers and sustainability demand this of us but the changes to the energy and environmental canvas make it essential. So the regulatory format that governs the monopoly pipes and wires (20% of our bills) is up for review ("RPI-X@20" Project) as are the rules that control the industry (the Governance Review) and we seek to ensure that the future retail customer experience is vastly improved (the Probe remedies). Project Discovery – a review of the medium term outlook for GB markets - is a key component to this overall strategy.

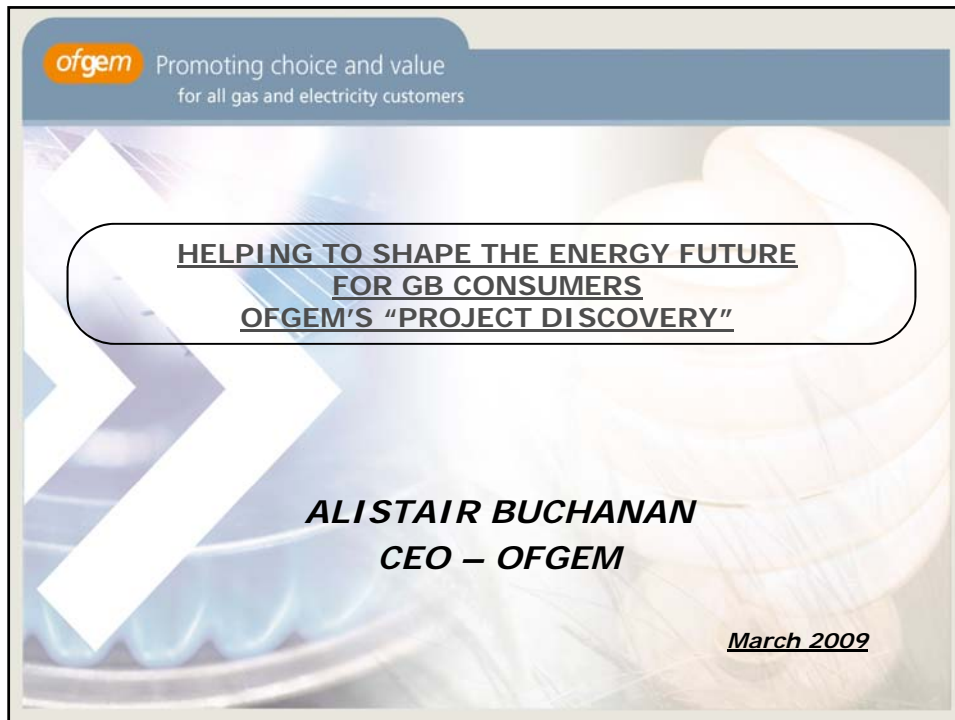
Over the last six months five seminal events have occurred which have the potential to alter the way we believe markets may operate in the medium term:

- | | |
|--|--|
| (1) The Credit Crisis: | What will be its lasting impact on the GB energy scene, especially for the vital renewables projects? |
| (2) The Climate Change Committee: | The rules just got tougher and it raises questions vis security of supply. |
| (3) The progress of the EUETS mechanism: | The current Phase 2 price has collapsed whilst the Phase 3 (post 2012) goal posts have moved. |
| (4) The events triggered by Russia-Ukraine: | Re-focus on Russia highlights not just political risk but availability of product, as well as the GB-EU interface. |
| (5) The credit crisis interface with macro supply to GB: | To what extent will the global effects of the credit crisis affect our supply assumptions. |

In addition to these five new events we must seek to be cognisant of potential lessons, or read across, from the events in the financial sector.

The reason why these factors have such an impact for GB consumers is that they may combine to challenge the expected market response to the "2016 cliff face", when a large proportion of coal and oil plant must come off the system because of EU environmental legislation. Previous market challenges (October 2003 for electricity and March 2006 for gas) have been met.

A team led by Andrew Wright and Ian Marlee will report to the Board in the summer and obviously our findings will be shared with DECC. We would propose to make a status report statement before the summer recess. Over recent years Ofgem has gained a reputation for open minded reviews. The way we have conducted the 2005 Gas Probe, 2008 Retail Markets Probe and the "RPI-X@20" review all prove that we do not start with a pre-judged outcome. Project Discovery has to be conducted within our statutory remit – "wherever appropriate by promoting effective competition".

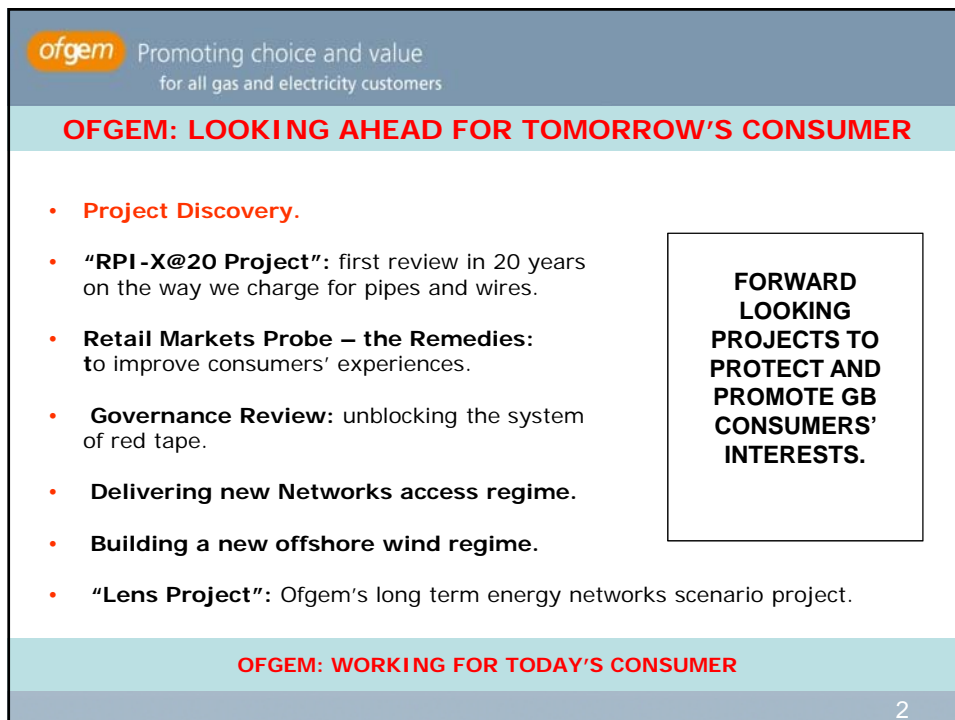


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**HELPING TO SHAPE THE ENERGY FUTURE
FOR GB CONSUMERS
OFGEM'S "PROJECT DISCOVERY"**

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OFGEM: LOOKING AHEAD FOR TOMORROW'S CONSUMER


- **Project Discovery.**
- **"RPI-X@20 Project"**: first review in 20 years on the way we charge for pipes and wires.
- **Retail Markets Probe – the Remedies:** to improve consumers' experiences.
- **Governance Review:** unblocking the system of red tape.
- **Delivering new Networks access regime.**
- **Building a new offshore wind regime.**
- **"Lens Project"**: Ofgem's long term energy networks scenario project.

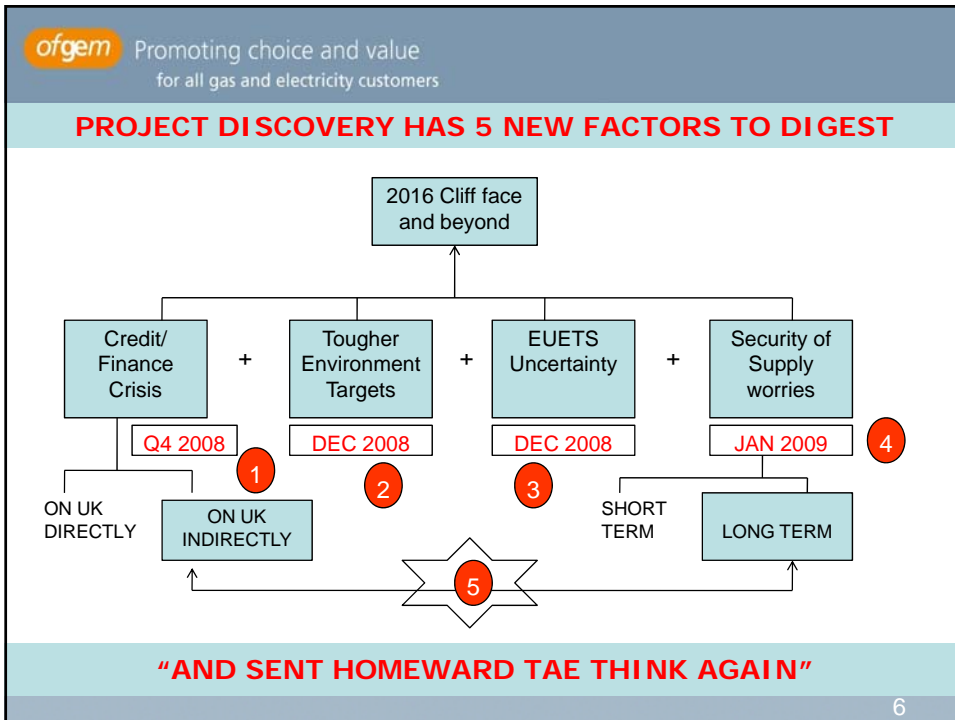
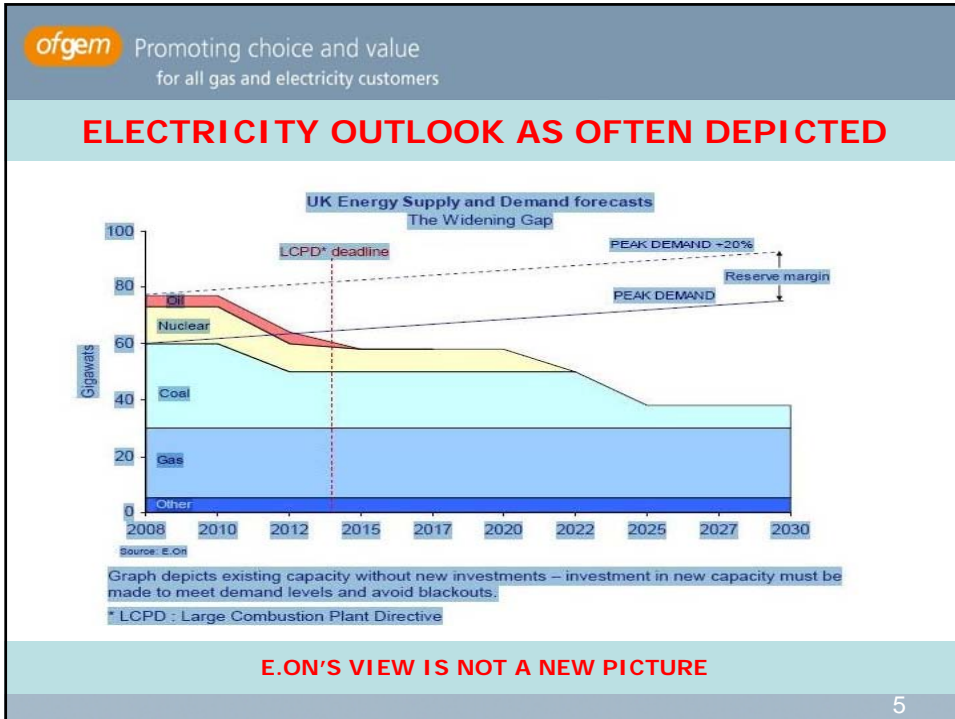
**FORWARD
LOOKING
PROJECTS TO
PROTECT AND
PROMOTE GB
CONSUMERS'
INTERESTS.**

OFGEM: WORKING FOR TODAY'S CONSUMER

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CONTENTS	
Section 1:	The background to "Project Discovery".
Section 2:	New environmental issues: new pressures on 2016 and gas demand.
Section 3:	Credit crisis hits GB at just the wrong time vis 2016.
Section 4:	European gas outlook could compound 2016 strains in GB. - Deliverability. - Credit Crisis impact.
Conclusion:	Can Scooby eat the sandwich?
Sources and Notes	
CALM, CONSIDERED, TIMELY	
3	

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SECTION 1: BACKGROUND	
<p>"Big energy projects take 10 years. If we see a pause in investment today we will not see the impact for 10 years".</p> <p><i>Gary Dirks President BP, Asia-Pacific 20th January 2009</i></p>	
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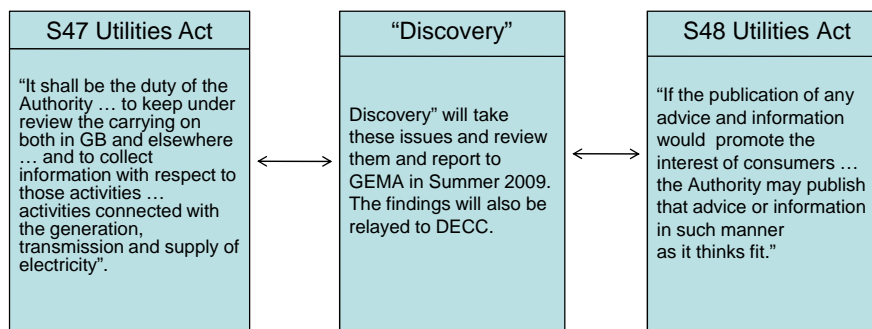
WHY SHOULD OFGEM CARE?

- 2000 Utilities Act responsibilities:
 - Security of Supply: to ensure that all reasonable demands are met.
 - **"Wherever appropriate"** by promoting effective competition.
- 2008 Energy Act: New focus and slant on our duties.
 - Primary Duty to **"future consumers"**.
 - Sustainability Duty given pre-eminence.
- Ofgem is an institution independent of political cycles.

CONSUMERS DO AND WILL CARE

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OUR STATUTORY REMIT



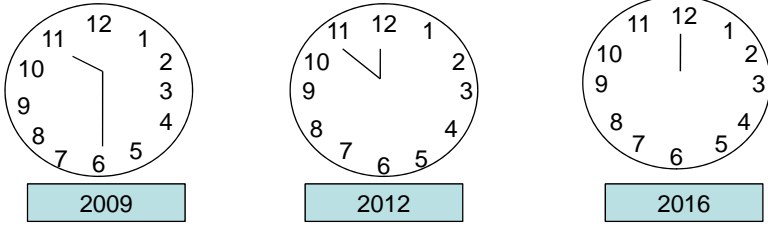
OFGEM: WORKING FOR TODAY'S AND TOMORROW'S CONSUMERS

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WHY CARE NOW?

- Must assess impact of 5 new factors.
- Significant power project lead times – e.g. Pembroke
- Storage lead times – e.g. Canataxx (GB), Bergermeer (Holland).
- System technical challenges and alterations take time.



2009 2012 2016

CALM REVIEW NOW STOPS "TALK OF CRISIS" LATER

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WHY NOT A PRIORITY BEFORE?

- **Markets have a good track record in delivering capacity:** electricity 2003, gas 2006 (N.B 1990'S: 30GW new and 24GW closed).
- **New projects anticipated:** 4GW new CCGT announced on 5/02/09, ESB keen to develop 2-4GW in GB, NG reviewing interconnection etc.
- **GB enjoyed island status** – especially for electricity – reducing uncontrollable risks.
- **Ofgem did and does care** ... MOD 006, UIOLI, 3rd Directive etc show us trying to make markets work better in GB and Europe.
- Gas Probe 2005/6 and Retail Markets Probe 2008 show that Ofgem acts to get best from markets.

BUT THE CONTEXT NOW APPEARS VERY DIFFERENT

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ALSO ... WE MUST APPRAISE LESSONS FROM FINANCIAL REGULATION

" The design of (financial) regulation is not straightforward. When everyone is baying for more tougher regulation, it is not needed. When such regulation is badly needed no-one wants it (since the good times are expected to roll on)"

" The main cause of externalities arises because the social cost of systemic (financial) collapse exceeds the private cost to the individual (financial) institutions and markets." "(Financial) regulation has been far too little focused on wider systemic issues".

Taken from Fundamental Principles of Financial Regulation (Geneva Reports on World Economy No 11) Preliminary Conference Draft – 24 January 2009.

"The fact that (banks) are fundamentally different from other businesses may exceptionally justify intervention".

Sir John Vickers, formerly DG, Office of Fair Trading.

ENERGY CANNOT IGNORE THESE IDEAS ... WE MUST CONSIDER THEM

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SECTION 2: NEW ENVIRONMENTAL IMPACTORS

"The Climate Change Act commits the UK Government to establishing legally binding limits on carbon emissions". "The Government will be breaking the law if we emit more than that."

*Lord Adair Turner, 3rd December 2008 at
IBM Public Sector Annual Meeting, London*

LIFE JUST GOT A WHOLE LOT TOUGHER

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NEW TOUGHER ENVIRONMENTAL TARGETS

LORD TURNER 3 DECEMBER 2008
(CHAIR – COMMITTEE ON CLIMATE CHANGE)

- “(There is) a very very strong political commitment to setting targets and then sticking to them ... they are legally binding targets”.
- 2050 targets hardened ...
- Coal CCS – coal confirmed as acceptable – but only with CCS.
- Nuclear – it’s ok.

IMPACT

- HMG revisits coal/CCS- new strategy due in 2009.
- CCS pilot won’t be known until 2014 – close to 2015/16.
- New nuclear will be available on the most optimistic basis by 2017.

HOW MUCH FLEXIBILITY IS THERE FOR SECURITY OF SUPPLY?

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EUETS – NEW UNCERTAINTIES

- In Brussels in December 2008: the EUETS Phase 3 2013 target jettisoned – 2020?
- Impact of phase 2 (2008-12) hindered by credit crisis ... demand destruction causes collapse in price to €8 co/t).

IMPACT

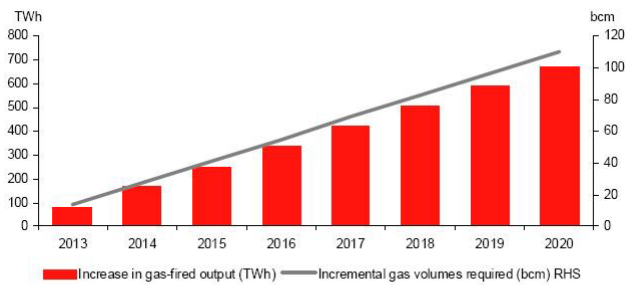
- Credibility of market instrument ... again doubted.
- Focus on gas ... 100bcm of demand creation 2013-2020 ... assuming EU comes to grips with coal ... have to play “catch up” for lost benefits of Phase 2.

“DISCOVERY” MUST WEIGH UP THESE UNKNOWNNS

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EUETS – FORCING FOCUS ON GAS

Additional gas demand due to ETS phase 3, 2013–20E



Source: Macquarie Research, January 2009

A THESIS: 100BCM MORE GAS FOR EU BY 2020!

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SECTION 3: CREDIT CRISIS

“I liken the credit crisis as a punch in the stomach (of the energy markets) ... will it be able to stand up straight afterwards? It does not mean that I am not confident that markets will not deliver in future; it just means that we have to go back and shake them down.”

*Alistair Buchanan, 27th November 2008 –
at BERR Select Committee, Parliament.*

A PROFOUND NEW DIMENSION TO FORECASTING?

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CREDIT CRISIS – HERE'S THE GOOD NEWS

- Listed GB utility companies are amongst the least affected in Europe – Citigroup.
- GB companies can raise equity – SSE, Centrica.
- GB companies can raise debt – NG, IPR.
- Purchasing power up for unregulated businesses and regulated companies largely protected at subsidiary level.

MONEY IS FLOWING INTO SECTOR

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IN THE GOOD NEWS THERE IS ALSO WORRYING NEWS

- Prices will inevitably reflect:
 - Higher: Cost of equity (+5%?)
 - Cost of debt (+2-3%?)
 - WACC's (+1-3%?)
- Equity issues closely examined by shareholders ... risk appetite is low.
- Debt issues have much stricter terms and restrictions.
- Markets are tight – low liquidity, poor spreads, low availability.
- Dividend protection made clear by companies.

CONSUMERS WILL ULTIMATELY BEAR COSTS

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CREDIT CRISIS: MEDIUM TERM IS THE WORRY

- **Re-financing short term** more urgent than building medium term - €65billion in 09/10 in EU alone to be re-financed (Citigroup).
- **Scale of spend** to hit 2020 targets doesn't allow for delay in GB:
 - £50bn by 2020.
 - 33GW renewables – only have 3GW currently!
- GB might be impacted by **capital allocations and corporate priorities**:
 - E.on and EDF issues warnings in February 2009 results.
 - Will EC spend and Big Euro Utilities spend go on East Europe infrastructure/Russia first?
 - E.on, RWE, EDF, Centrica already sinking large sums in GB nuclear (£30-40bn).
- **GB's spend is on technically difficult or new products.**
 - 8GW from offshore wind by 2020.
 - Offshore gas storage is difficult ... cushion gas etc.

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DELAYS AND DOUBTS ALREADY OCCURRING

- **Gas Storage**
 - 1bcm Portland ... delayed 1-2 years Q4 2008 ... also Gateway affected.
 - 4bcm Esmond ... delayed/cancelled January 2009.
 - Centrica storage ... "need clarity on capital allowances and Crown Estates charging policies ... these are marginal economic investments".
- **Wind**
 - 1GW Array ... doubts raised in January 2009.
- **General**
 - E.on and Iberdrola announce capital "flexibility" to 2010 – not yet clear where the flex will come.
 - Italy takes dramatic action over market based approach.

CURRENT NEWS CARRIES CHALLENGES

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WHAT DO THE MARKETS SAY ON WIND?

- UBS (9/12/08): - IRR's for wind fallen 22% to 14%.
- UBS (9/12/08) - 20% decline on wind GW capacity in 2009.
- Material risk of profit warnings at Vestas in 2009.
- Siemens (27/1/09) - "If I had to take one of the 17 divisions in the company – for deferrals or push-outs – I probably would take wind". **Joe Kaeser, CEO.**

Siemens report 38% year on year decline in renewables orders.
- E.on (27/1/09) "The economics of London Array is on the knife edge" **Paul Golby, CEO E.on UK.**

WIND BEING BUFFETED?

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WHAT DO THE COMPANIES SAY IN GENERAL?

- **Centrica** (1.2.09)
"Investment is starting to fall off quickly. If we have a hiatus (because of the credit crunch) of more than a year then its going to be a bigger challenge to meet our renewable targets to ensure we have Security of Supply".
Sam Laidlaw CEO.
- **Encore** (20.1.09)
"The constraints caused by the current capital and debt environment make it difficult to assess the likelihood of attracting further investment in the near term". **Alan Booth, CEO.**
- **Alstom** (23.1.09)
Forecast a 30% drop in European Utilities orders in 2009 (Q4 2008 orders were down 47% for power systems equipment).

BOTH BIG 6, MAJOR SUPPLIES AND ENTREPRENEURS EXPRESS CONCERNS

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WE HAVE A HIATUS – BUT WHAT IS THE IMPACT?

- Very unsure – views of the future differ between UBS or Morgan Stanley

“We disagree on the timing and speed of recovery in orders – look to end 2010/early 2011”. **Scott Babka Morgan Stanley.**

“Return to 25% growth p.a. (in wind) in 2010”. **UBS.**

- But exposure to systemic risk and consequent risk aversion must be high.
- So much may swing in our views on demand destruction (extent and time length) ... is it reasonable to assume a full economic recovery on by 2016?

“DISCOVERY” NEEDS A REALISTIC TAKE ON CREDIT CRISIS

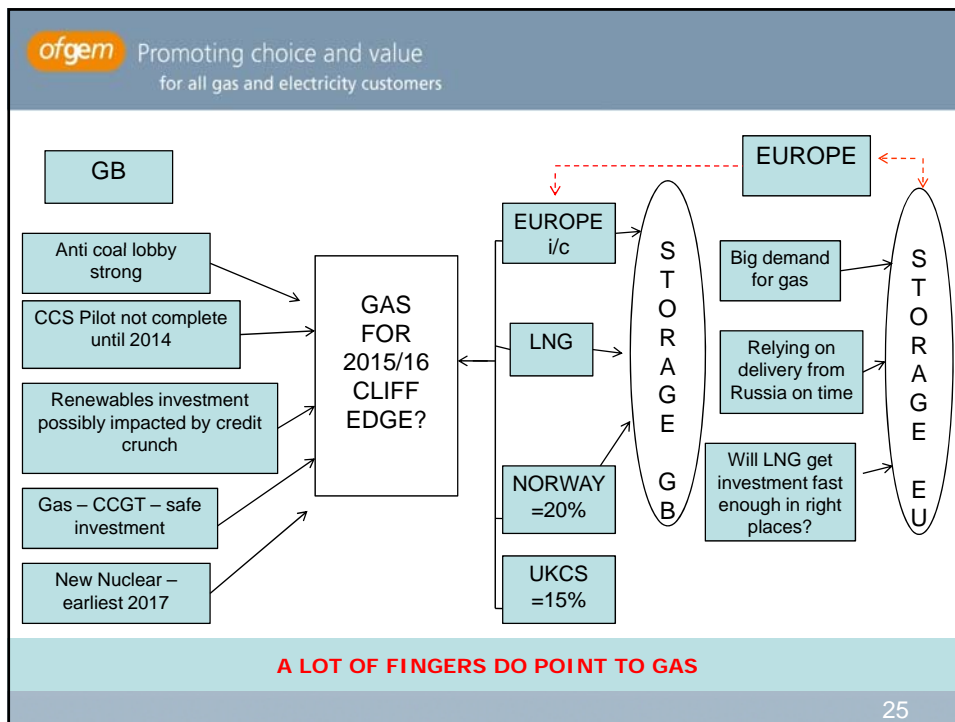
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SECTION 4: EUROPEAN GAS OUTLOOK COULD COMPOUND 2016 STRAINS IN GB

“In the current economic and financial climate energy projects are finding it particularly difficult to access investment”.

President, EU Commission - Jose Manuel Borosso (29.1.09).

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	2020 BCM	2015 BCM	BASE CASE COMMENT
Base case EU demand – consensus forecasts.	700	630	Of which UK demand is 98bcm/97bcm.
Gazprom to EU (bcm)	220	203	Relies on Shtokman delivering 57bcm/22bcm.
(Of which Middle Asia)	70	60	Assumes pipeline constructed and that Turkmenistan has also 40bcm for China and EU direct.
LNG to EU	156	106	Assumes Qatar etc deliver.
Other supplies, Norway etc	324	321	Assumes Shtokman LNG, full Nabucco.
EU can balance its books - supply	700	630	

GAS SUPPLY = GAS DEMAND ... JUST

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	2020 BCM	2015 BCM	HIGH EU DEMAND CASE/ WORST SUPPLY CASE
High demand case	775	650	See notes.
Gazprom to EU	200	185	No Shtokman or South stream in 2015.
Gazprom Middle Asia	50	40	20bcm to China/Europe as did not develop enough capacity.
LNG to EU	156	106	Assumes Qatar etc deliver and Shtokman.
Other Supplies, Norway etc	311	298	No Iranian gas taken, Nabucco limited for 2015.
Total supply needed	775	650	
Shortfall in supply	108	-61	

IMPACT HUGE IF THIS CASE OCCURS

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WHY EXAMINE THE DELIVERY DATA ANEW?

- Financial crisis plus price of oil/gas commodities:
 - impacts all players – including Gazprom ... cutting back capex in electricity sector in Russia.
 - Impacts key regions – Turkmenistan.
 - Affects funding of massive/difficult projects.
- Security of Supply affecting contract assumptions ... inter alia:
 - Different regulatory standards across transit countries causing delay.
 - Turkey and Nabucco.
 - Russia and Nabucco.
 - France urgently needs gas stations.
- Technical challenges become clearer by the day.
- EUETS will throw more demand on gas supply.

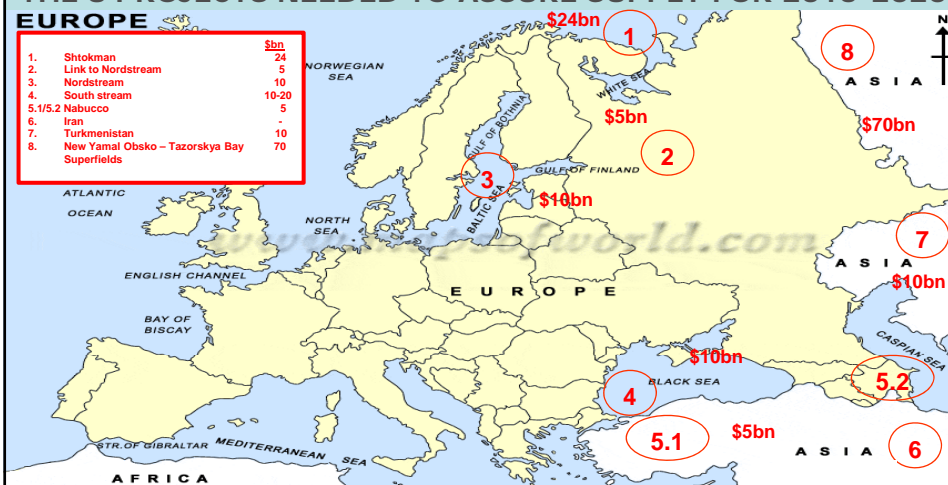
NB: NOT OFGEM'S REMIT TO DISCUSS POLITICAL RISK – SO I HAVEN'T

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THE 8 PROJECTS NEEDED TO ASSURE SUPPLY FOR 2015-2020

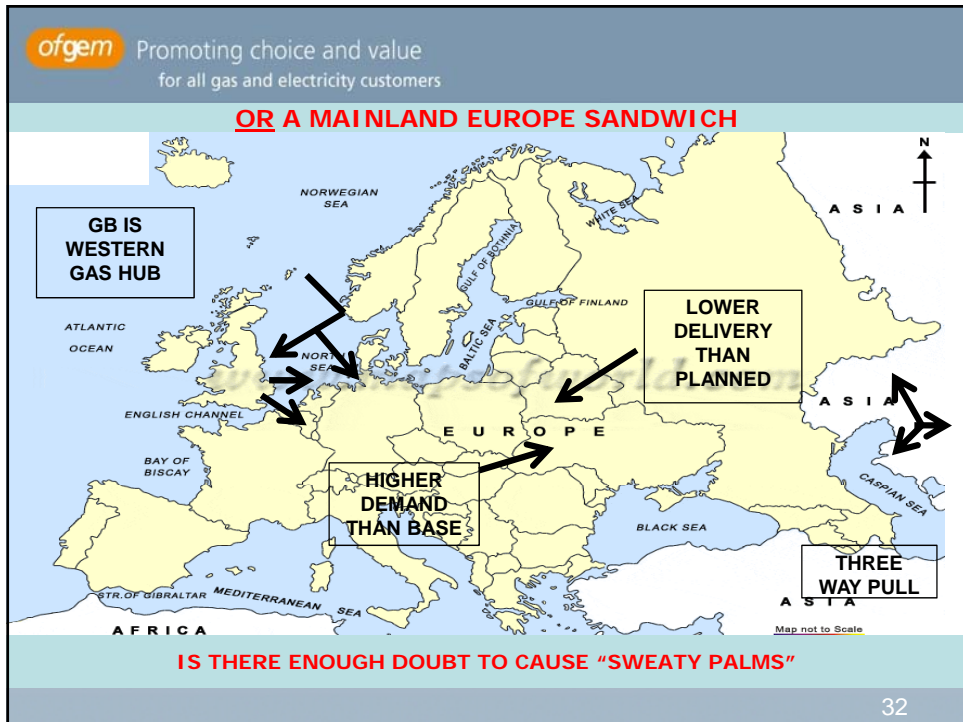
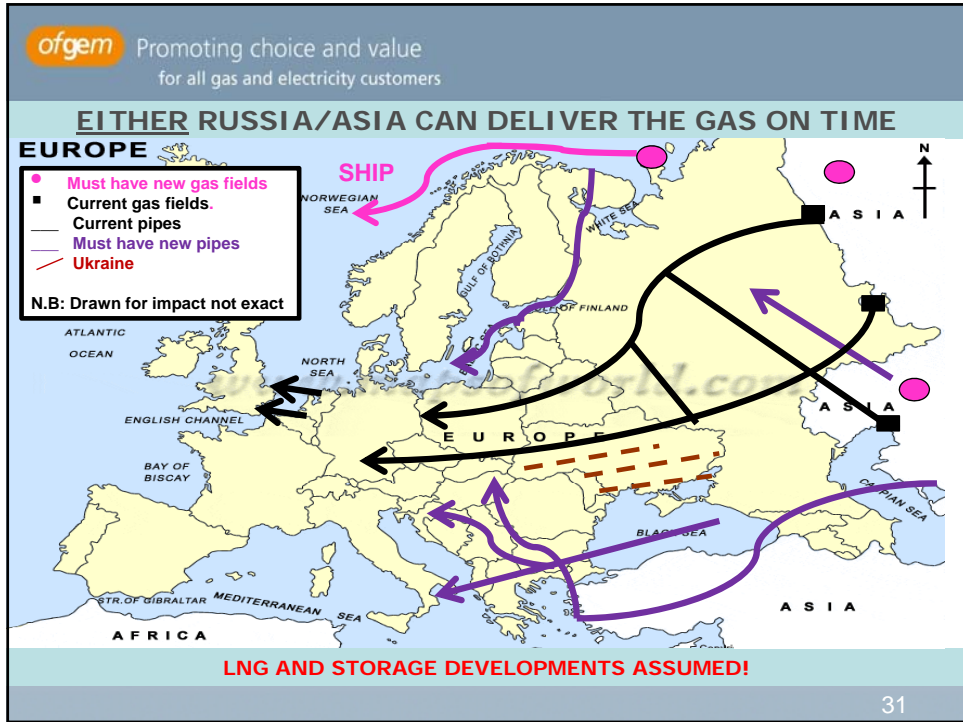
EUROPE

	\$bn
1. Shtokman	24
2. Link to Nordstream	5
3. Nordstream	10
4. South stream	10-20
5.1/5.2 Nabucco	5
6. Iran	-
7. Turkmenistan	10
8. New Yamal Oboko – Tazorskya Bay Superfields	70



HUGE SUMS INVOLVED: \$135BN MINIMUM MUST BE SPENT

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CREDIT CRISIS + SCALE OF INVESTMENT = CHALLENGES

Case No 1: Gazprom – vital company for delivery.

- Appear financially strong and sound BUT raising debt is a challenge ... and must deliver on super giant fields.
- Appear to say that they can deliver to very demanding deadlines BUT "everything needs to be in place".

Case No 2: Shtokman – vital project for delivery.

- Final decisions yet to be taken (December 2009).
- Some decisions pushed back to 2010 in 2008 Duma Conference.
- Clarity still sought on flow from Murmansk to Nordstream.
- Exhilarating project – fantastically complex.

Case No 3: New Russian Laws – Disincentivise new money

- New E&P laws make foreign investment much harder.

A CRITICAL DIMENSION

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"DISCOVERY" FITS IN TO THIS MACRO PICTURE

- "Discovery" will need to stress test these forecasts on Russian gas and pipe delivery schedules.
- "Discovery" must also examine the "LNG" outlook for Europe ... both for impact on EU supply/demand but also on GB Security of Supply.
- Reasonable assumptions on storage must be made.
- "Discovery" needs to take a view on the impact of the credit crisis across Europe and across the supply chain.

THE FOCUS THROUGHOUT FOR OFGEM IS 2016 CLIFF EDGE IN GB

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DON'T FRIGHTEN THE HORSES WE HAVE LNG

- LNG a big success for GB = new 60bcm (demand is only 100bcm in GB).

BUT

- Japanese demand rising – plus big swing on 2020 forecasts.
- USA demand rising – DoE says 2% LNG in 2007/08 to 30% by 2025.
- China and India could be major catalysts.
- Very expensive to argue for:
 - Shell: distances. LNG economic versus offshore pipe over 1500km and onshore 4000km.
 - Simmons International: \$1bn for 1 mt LNG facility. (1£LNG = 48,000 cuft).

BUT NB: WINTER 08/09 WITNESSED 50MCM/D EXPORT TO EUROPE



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BIG SWING ON DEMAND FOR LNG IN FAR EAST BY 2020

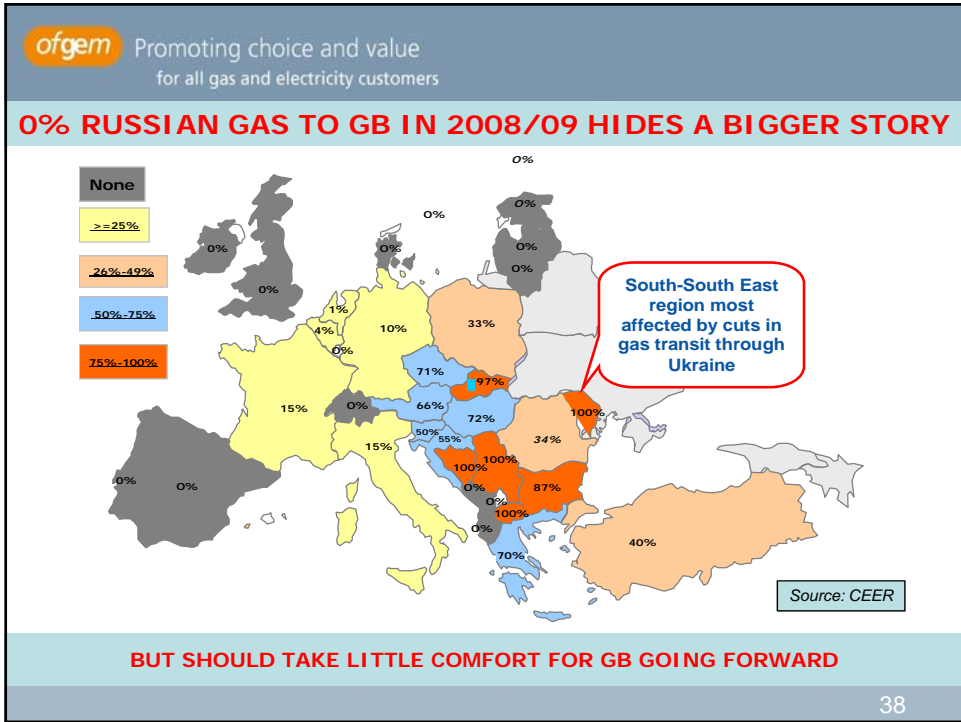
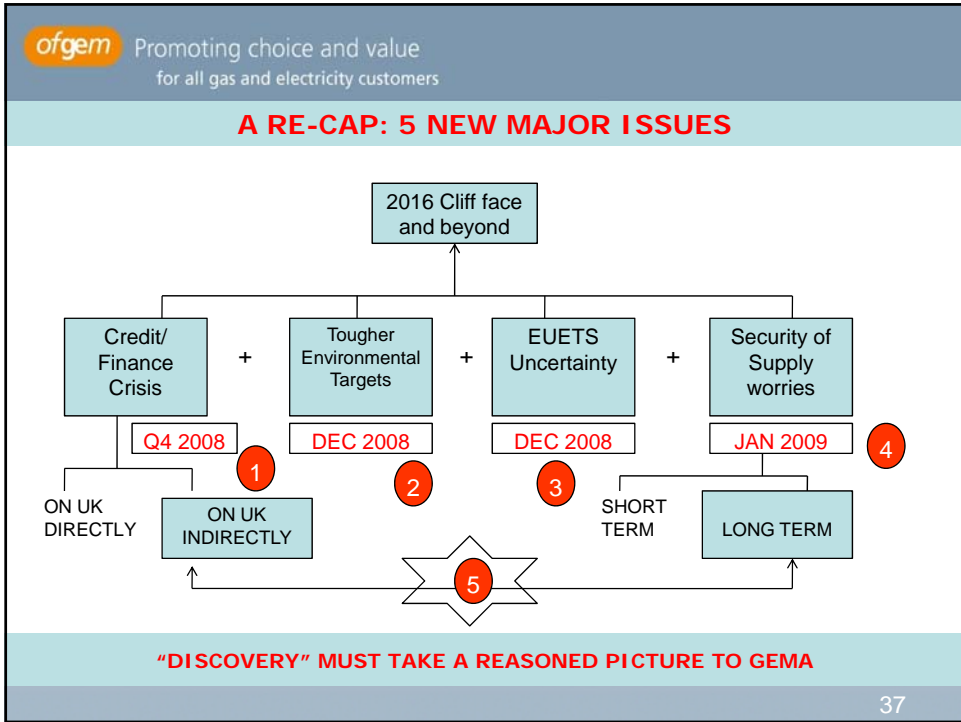


Gas Market Development

Compilation of various forecast data for gas supply and demand in Asia-Pacific market, gas market will grow for sure



GB'S ASSUMPTIONS LINKED TO GLOBAL OUTLOOK



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**IT'S THE SCOOPY DOO QUESTIONS THAT "DISCOVERY"
SEEKS AN ANSWER TO**



**(1) CAN MARKETS EAT ALL OF THESE ISSUES?
(2) CAN IT DO WITHOUT A DIGESTIF?**

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CONCLUSION

- Ofgem is known for independent and detailed reviews – open minded projects ... not afraid to ask questions.
- Need to stress test future assumptions – especially the danger of assuming "announcements = steel in the ground".
- Need to look at ways of handling what we find ... supporting markets is our preferred starting point ... and our statutory remit.
- Initial report in Summer 2009 to GEMA.
- Ofgem will liaise closely with DECC on findings.

WORKING FOR TODAY'S AND TOMORROW'S CUSTOMERS

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