City Briefing

Wednesday 4 November 2009

Agenda

- **Alistair Buchanan** – Chief Executive
  - Overview of current and upcoming regulatory challenges
- **Sarah Harrison** – Senior Partner, Sustainable Development
  - New division: increased focus on sustainability
- **Steve Smith** – Senior Partner, Local Grids and RPI-X@20
  - RPI-X@20: issues and current thinking
- **Andrew Wright** – Senior Partner, Markets
  - Project Discovery: reviewing security of supply
- **Closing comments**
- **Questions & Answers**
- **Buffet Lunch**

CHIEF EXECUTIVE

ALISTAIR BUCHANAN

A RE-CAP SINCE WE LAST MET

Probably what you saw:

- We delivered new offshore regime to target date of June 2009.
- Ofgem's retail market Probe unlocked £½billion for consumers and triggered significant changes.
- Major advances by Ofgem on network access reform.
- CAT upheld 2008 ruling by Ofgem against National Grid (with £30m fine).
- NPower fined for misselling.
- Leadership on delivery of European 3rd Package.

POLICE, IMPROVE, HARRASS, EDUCATE, DELIVER

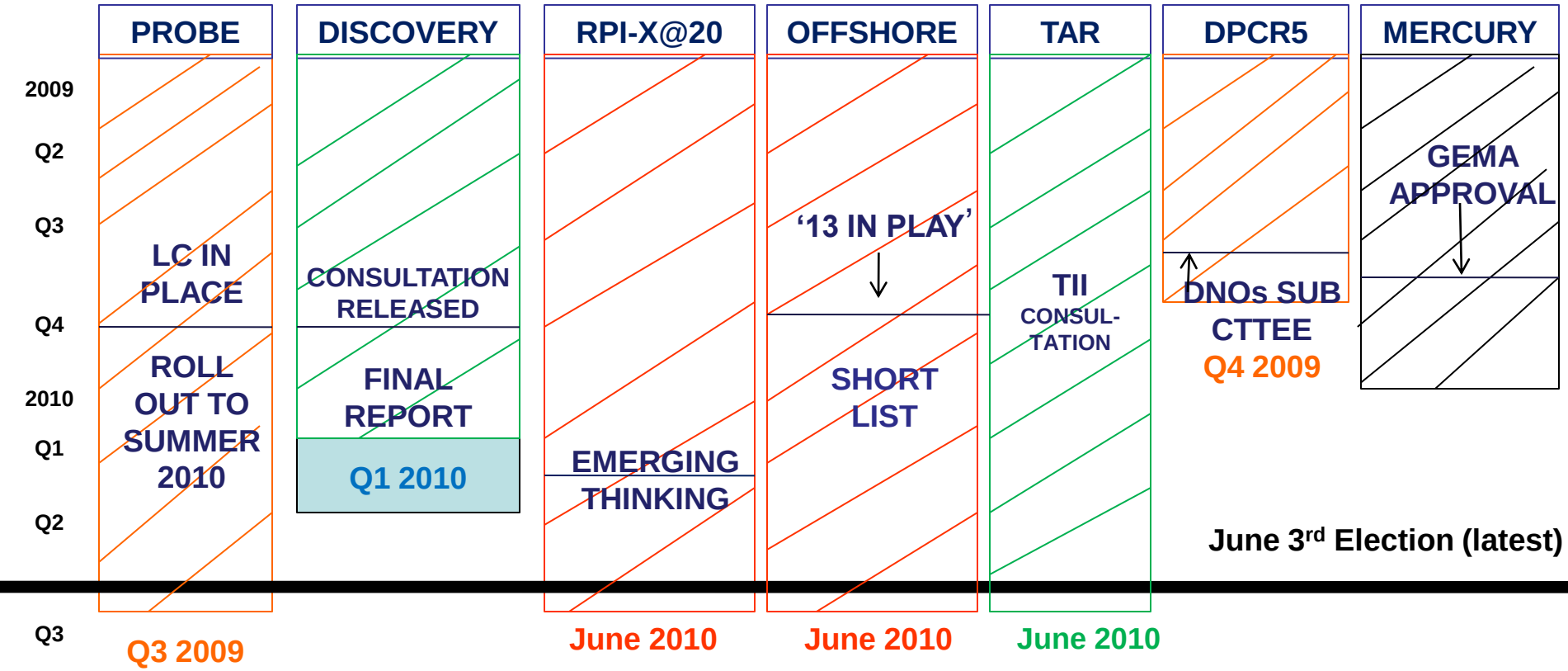
A RE-CAP ON 2008/2009

Probably what you didn't see:

- In spite of increased workload Ofgem beat self imposed RPI-3% (4th year in row).
- First public body to get clean audit and laid accounts on 29th April.
- Met internal (and audited) targets for deliverables, MODs, KPI etc.
- Continued focus on our own sustainability targets (rail travel, Ofgem footprint etc).
- Ofgem remaining fully committed to people issues: graduate hiring, excellence in management programme etc.
- Re-organisation of Ofgem Group

ALSO … HUGE AMOUNT OF POLICY WORK "UNDER RADAR" … TO BE SEEN IN 2009/10

PHASING OF POLICY STREAMS



BLUE DENOTES KEY GEMA MOMENTS

PRIORITY POLICY OBJECTIVES

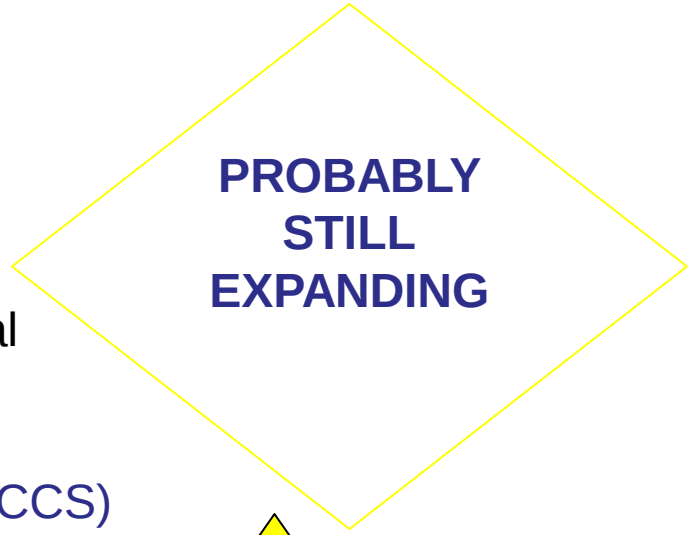
Deliverables/Objectives to Summer 2010	SD Considerations	Project:
(1) Provide a [clear] view on M/T Security of Supply and where/if relevant provide remedies/options.	**Yes**	**Discovery**
(2) Decide whether the PCR is fit for purpose.	**Yes**	**RPI-X@20**
(3) Launch and deliver offshore regime.	**Yes**	**Offshore**
(4) Deliver local electricity Network Price Review.	**Yes**	**DPCR5**
(5) Deliver a new regime for network companies in financial distress.	**N/A**	**Mercury**
(6) Ensure findings of retail probe are implemented.	**Yes**	**Energy Supply Probe**
(7) Delivery on a Transmission Access Regime	**Yes**	**TAR**
(8) Assist ERGEG in post EU Directive issues (Not strictly in Ofgem's control/remit).	**Yes**	**3rd Package**

PROCESS OBJECTIVES

Deliverables/Objectives to Summer 2010	
(1) Governance Review	Even more important now at policy stage
(2) Managing new "SD" processes	Focus on introduction of CESP etc.
(3) Offshore regime	Critical period between "Go Active" in June 2009 and "Go Live" in June 2010
(4) Preparing to manage new potential work	CCS levy? Smart meters?
(5) Ofgem's 2010-15 budget plans	Financial "supply" tight but financial "demands" grow

OUR PROCESSES ARE NOW MUCH MORE INTERACTIVE WITH CONSUMERS

CONTEXT 1: MARKET OUTLOOK: A ROUGH DIAMOND?



Credit Crisis continues to exert impact

Each Political intervention impacts uncertainty (CCS)

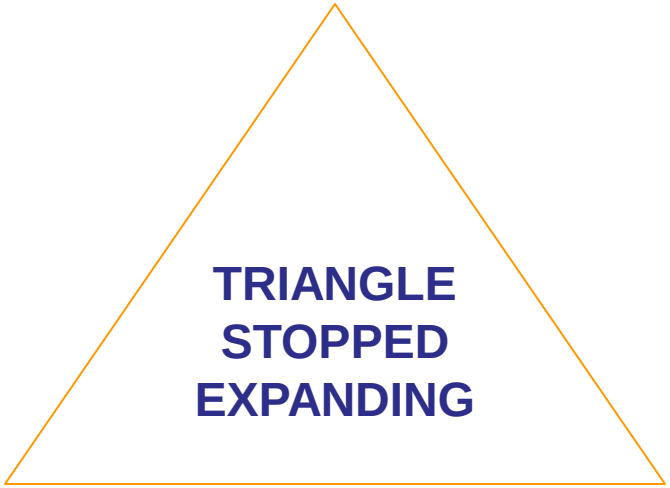
Structural weaknesses are compounded (Liquidity, volatility)

EU constraints impact GB (Behavioural remedies, German constraints, German storage)

HUGE IMPLICATIONS FOR OFGEM'S "DISCOVERY"

CONTEXT 2: FINANCE – A TRIANGLE OF UNCERTAINTY?

PROVIDERS
of Finance/Credit
(Ratings agencies becoming more confident)



SHAREHOLDERS
(Looking at options)

BOARDS
(NEDs are
understandably cautious)

IMPACTS NETWORKS AND MARKETS INVESTMENTS

CONTEXT 3: WE MUST APPRAISE LESSONS FROM FINANCIAL REGULATION

" The design of (financial) regulation is not straightforward. When everyone is baying for more tough 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

CONTEXT 4: MESSAGES ON PRICES

Capex and SD spend for DPCR5 **may** push prices up	↑
For majority of customers a fuel poor carry	↑
"T" charges – interim "C and M" solution	↑
ROC •up anyway •up in budget	↑
CERT EEC etc.	↑
CESP pass-through	↑
CCS?	↑

SUBSIDY = 10% of BILL…and RISING

BUT SHORT TERM NEEDS TO BE UNDERSTOOD

PRESSURES UP

- Demand collapse – gas dumped into market.
- Network charges up since 2004.
- Environmental charges (£63-£83 last year).
- Social costs – recessionary impacts (bad debts etc).

PRESSURES DOWN

- Quarterly Report September… next due around Christmas
- Non-appearance by Industry on Watchdog etc.
- Where are the companies?

GEMA WILL REVIEW ALL OPTIONS IF NEEDED

OFGEM'S ROLE IN "SEA OF CHANGE"

We are a creature of statute but we can be visionary:

- Unique role to provide visions or future: Discovery, RPI-X@20, LENS – N.B. we did this on smart meters.
- Facilitate the vision of others – Offshore, TAR.
- Visionary leadership can be via institutions – we Chair CEER (Europe), ENSG.

This assists those who decide "vision" (i.e. HMG)

- Use our unique core skills in energy etc.
- We can ensure all voices are heard on policy vision.
- We can assist in solutions to "E-Serve work".

CONSUMERS NEED A SAY IN THE FUTURE

WE KNEW WE NEEDED TO CHANGE

- Six years since last major re-organisations (i.e. RR1 and RR2!)
- We need to respond to new duties and new functions expected of us (2008 Energy Act and new 2010 Energy Bill).
- We need to take ideas from critics – i.e. Consumer Focus raised "Wales and Regions".
- NED's vocal on key areas – sustainability, maintaining our ability to understand technical/engineering changes and risk management.
- Structure not assisting the current level and shape of workload.

OTHERS THOUGHT THAT WE NEEDED TO CHANGE

BUILDING ON OUR SUCCESS: DELIVERY

- For just £8m we administer and run £3.9 billion of Environmental schemes and subsidies.
- We live within our means: beat RPI-3% for each of the last five years (over £20m saved for consumer).
- Delivered the NEW offshore regime in 2009.
- Handled rapid growth of energy efficiency schemes:
  - 2002-5: £150m pa
  - 2008-11: £1bn pa
- Manage key functions for PostComm and NI Regulator.

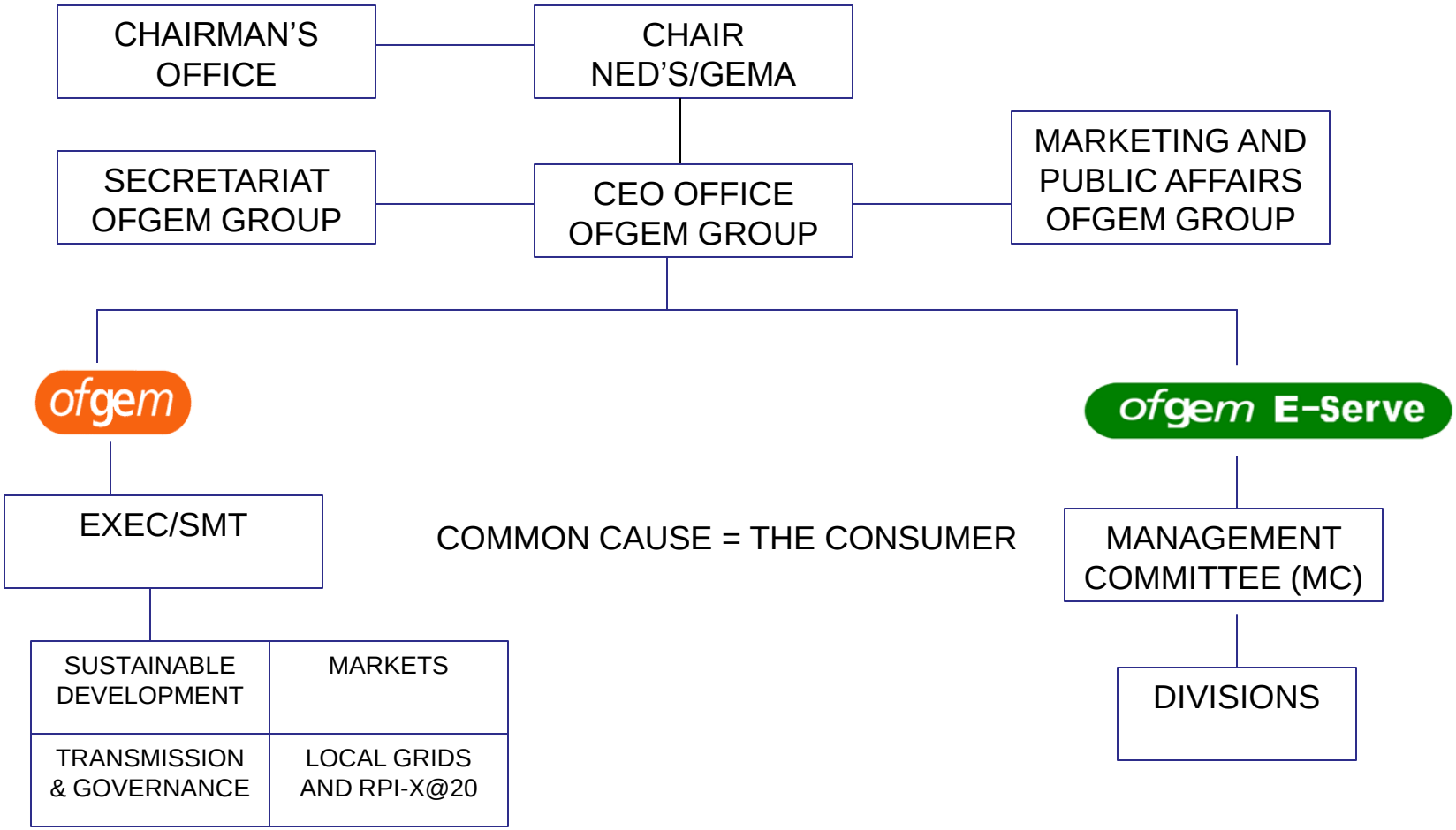
OFGEM'S DELIVERY ARM IS MANAGING TRANSITION FROM 10% ELECTRICITY FROM RENEWABLES TO 35-40%

DELIVERY ARM – THE SCALE OF GROWTH IS IMPRESSIVE

Programme	Expected growth
ROC and CCL administered by Ofgem	Today: £1.2bn pa Estimated: £5bn pa by 2020
Levies for generation	Today: 52 TWh Estimated: 330 TWh by 2010
Renewable Obligation	Ofgem in ROC business to 2037
Prime Minister's "Home Energy Saving Programme"	CERT +20% & extended to 2012
Offshore	Already known rounds 1 & 2: 8GW = £2bn investment
	Phases 2 & 3: £10 – 15bn

ALREADY NOMINATED TO DO SMART METERS, CCS AND FEED-IN TARIFFS

NEW LOOK STRUCTURE: HEADLINE LEVEL



COMMON CAUSE = THE CONSUMER

SUMMARY

- Creation of ofgem E-Serve to signal our competencies as a delivery agent and that we are ready to handle new work.
- Creation of Sustainable Development Division in ofgem. Led by a Senior Partner with extensive external and internal remit.
- Recognising the huge importance of networks in low carbon agenda. Create local Grids Division and standalone Transmission Division in ofgem.
- Europe to be a stand alone business within Markets Division as 3rd Directive gets implemented over next 18 months.
- Creation of Group Finance Director to come into line with Treasury guidelines. Also to front burgeoning environmental programmes work in ofgem E-Serve.
- Responding to external suggestions – creation of "Scotland, Wales and the Regions" Director.
- Leadership teams unchanged for key projects: Discovery, RPI-X@20, Mercury.

NOW … MORE ON NEW SD DIVISION …

SENIOR PARTNER, SUSTAINABLE DEVELOPMENT

SARAH HARRISON

Energy legislation

2008 Energy Act

- Prominence to protecting the interests of existing and future consumers
- Greater priority to sustainable development
- Changes took effect in January 09
- Consultation on new Social & Environmental guidance

Government action

- Summer Low Carbon Transition Plan signalled legislative changes
- Clarification of Ofgem's duties
- New powers for Ofgem
- New levies for CCS and social tariffs

Ofgem changes

- Clarification that interests of existing and future consumers include security of supply and climate change
- Ofgem to draw on competition and regulation
- New powers for Ofgem:
  - market abuse
  - scope of financial penalty powers

Timing

- 18 November - Queens Speech to confirm plans for Fifth Session Energy Bill

Ofgem welcomes changes and new powers

Smart metering

Government action

- Energy Act 2008 allowed SoS to:
  - Mandate roll-out to specific segments
  - Modify licence conditions & codes
- October 08 - intention to mandate roll-out to **all** households by end 2020

Figures

- 25 million households
- 47million meters
- c£8bn cost

Delivery models

- Supplier-led roll-out & central communications provider **-** Govt's preferred approach in May 09 consultation
- Network-led roll-out **-** would involve re-regulation of metering

Timing

- May-August 09 - Government consultation
- Govt response to consultation due shortly

Ofgem working closely with Government - ready to work on roll-out

Renewable Financial Incentives

Government action

- RES aim: increase renewable electricity from 5.5% of total generation to 30% by 2020
- Support schemes
  - RO for large scale projects
  - Feed in Tariffs - schemes up to 5MW
- Renewable Heat Incentive (consultation due end of 09)

Figures

- £6bn pa in 2020: cost to consumers of total support to renewable generation under amended RO
- £7.9 bn by 2030: cost to consumers of Govt preferred scenario for FIT
- £52/MWh: RO
- £93/MWh: FIT
- +£170 to gas bills in 2020: RHI

Ofgem issues

- "Revenue stabilisation mechanism" for RO: step in right direction
- Govt preferred scenario for FIT: additional £3.4bn cost to consumers for same level of renewable electricity
- Complexity: 22 tariffs vs 3 in Germany
- Concerns over regressive effects

Timing

- Modifications to RO and new FIT scheme to be implemented from April 2010

Ofgem response to consultation Oct 09 - Ofgem E-serve to administer schemes

Fuel poverty, social obligations and consumer insight

Government action

- Legislate for a new 'Social Price Support mechanism' - mandated social tariff
- Likely targeted at older customers
- Likely higher than existing voluntary obligations (£150m pa by 2011)

Government Figures

Households in fuel poverty:

- 2007: 4 million in UK
  2.8 million in England
- 2008: 3.6million in England
- 2009: 4.6million in England

Ofgem action

- Competition and regulation: ensure cost control and no undue price discrimination
- Promote best practice (debt, disconnect)
- Promote debate : impact of design of renewable financial incentives, energy efficiency and retail tariffs
- Promote consumer engagement in market: retail probe measures, consumer campaigns

Building consumer insight

- Sustainable Development review
- Ofgem Consumer First programme
  - Panel of 100 householders
  - Consumer Challenge Group DP5
  - Consumer research

SENIOR PARTNER, LOCAL GRIDS AND RPI-X@20

STEVE SMITH

What is RPI-X@20?

- RPI-X has been used to regulate GB energy networks for nearly 20 years
  - Biggest review since RPI-X was introduced for BT in 1984
  - RPI-X@20 is a 'root and branch' review of the regulatory regime
  - We will develop recommendations for a future regulatory framework

What are the drivers of the review?

Good housekeeping	New and emerging challenges	Simplification?

First consultation document published in February 2009

Identified 2 themes for the review

1. Focusing on consumer needs
2. Delivering a sustainable energy sector

Relationship with price controls

Electricity Distribution	Transmission	Gas Distribution
DPCR5 Insulated from RPI-X@20 but introducing new ideas (eg. Outputs, innovation, incentives) **DPCR6** Fully incorporate RPI-X@20 conclusions	**TPCR5** Fully incorporate RPI-X@20 conclusions Timing options: • April 2012 - parallel • Roll-over 1 yr	**GDPCR3** Fully incorporate RPI-X@20 conclusions

What have we done since February?

8 working papers - Current thinking

1 What a future regulatory network should deliver

2-8 How these outcomes could be delivered

Innovation	Consumer engagement in the regulatory process
What do we mean by efficiency?	Enhancing competitive pressures
A modified ex-ante framework	Ensuring regulatory frameworks are adaptable
Who decides what energy networks of the future should look like?	

Commissioned consultancy reports

Ex-post regulation	Role of future networks
Right for 3rd party objection	Trend in technical innovation

What should the regulatory framework deliver?

Networks should deliver outcomes/outputs efficiently over long term

- Play full role in facilitating delivery of a sustainable energy sector (e.g. environmental targets, security of supply, social targets)
- Provide value for money over long term

Networks should deliver outcomes/outputs efficiently over long term

- Keep options open but not at the expense of delivery or value for money
- Make more efficient choices between existing assets, new technologies, contracts and IT and new assets

What may need to change to facilitate achievement of this objectives?

Output measures | **Assessment of efficient expenditure** | **Incentives**

What form should the regulatory framework take?

1) "Modified ex ante regime"

- Defined outputs
- Richer business plans
- Incentives framework

2) "Ex-post regime" (up front rules, assessment triggered if rules breached)

- Consultant report recommended against ex post regulation for energy networks
- Concerns it would not protect consumer interests or effectively support investment

3) "Enhanced competitive pressures "

- Drive efficient delivery of network outcomes/facilitate retail competition
- Innovative business models e.g. Energy Service Companies (ESCos)
- Avoid creating unnecessary barriers to competition
- Competitive tendering - potential complement to regulatory tool-kit

How can more innovation be stimulated?

What is the issue?

- Innovation post privatisation primarily driving greater operating and capital efficiency
- Much greater technical and operating innovation required on networks (smarter grids?) to deliver low carbon energy system

To better understand the issues we have

- Commissioned a KEMA report on technical network innovation
- Published a working paper setting out our emerging thinking on the issue

Current thinking

- Enhanced competition and a modified regulatory regime may stimulate innovation but not in time for 2020 and 2050
- A time limited innovation stimulus is needed to support the step-change in innovation to meet the 2020 and 2050
- Build on the RPZ, IFI and Low Carbon Networks fund

Role of consumers in the regulatory regime

Effective engagement	
Rationale	**Benefits**
• Cost increase • Environmental decisions • Concerns over regulation • Complexity	• More informed regulatory package • Improve legitimacy of the regime • Improve consumer understanding

What form might engagement take?

Informing decisions	Part of decision-making process	Agreeing certain parts of settlement

We are also assessing the case for introducing the right for non-network parties to challenge Ofgem price control decisions

Financeability and adaptability

Efficient networks should be able to finance their activities

In addition to financing duty…	
Need tools to reduce exposure to uncertainty? When should they be used?	Need more explicit clauses for full re-opener of the price control?

Regulatory framework needs to be able to

- Adapt during a regulatory period
- Adapt between regulatory periods

RPI-X has been good at adapting over time, but need to consider against backdrop of significant uncertainty

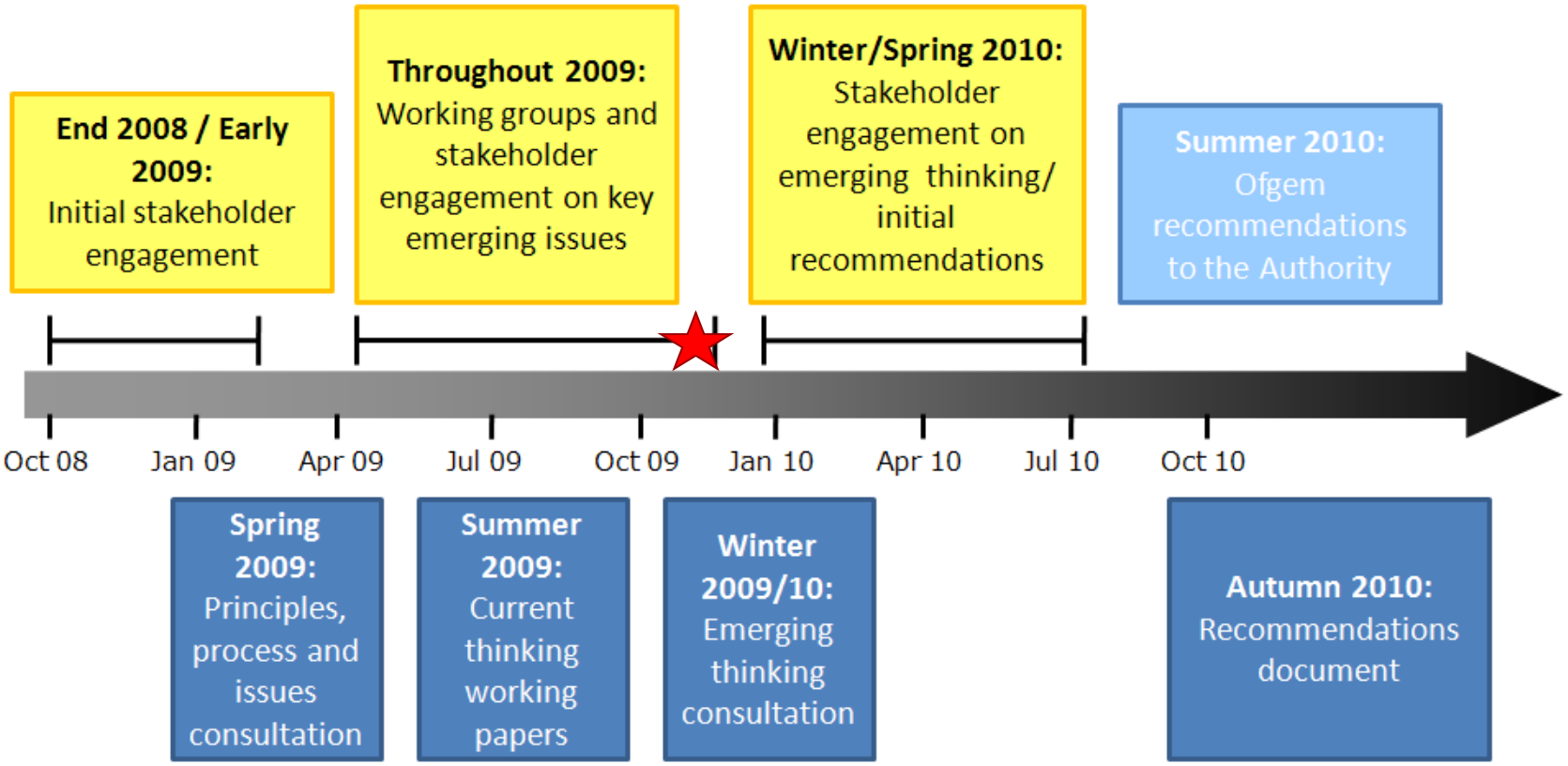
What next?

Emerging Thinking **Consultation document**	• Publication expected in Winter 2009/10 • Develop thinking from working papers • Build on stakeholder engagement, working groups & consultant reports • 12-week consultation period • Present recommendations to Authority in Summer 2010

Continue to welcome contributions to our web forum

http://www.ofgem.gov.uk/Networks/rpix

Timeline


End 2008 / Early 2009: Initial stakeholder engagement
Throughout 2009: Working groups and stakeholder engagement on key emerging issues
Winter/Spring 2010: Stakeholder engagement on emerging thinking/ initial recommendations
Summer 2010: Ofgem recommendations to the Authority
Oct 08
Jan 09
Apr 09
Jul 09
Oct 09
Jan 10
Apr 10
Jul 10
Oct 10
Spring 2009: Principles, process and issues consultation
Summer 2009: Current thinking working papers
Winter 2009/10: Emerging thinking consultation
Autumn 2010: Recommendations document

Key messages

Considering implication of major sustainability challenge • particularly transformation to low-carbon energy sector	**Consumers interests best served where:** • efficient companies can finance their activities • company rewards reflect risks
Potential changes to current RPI-X framework	**Maintain transparent process** • fully understand benefits of regulatory clarity
Potentially encourage energy networks to operate differently	**No retrospective effect**

SENIOR PARTNER, MARKETS

ANDREW WRIGHT

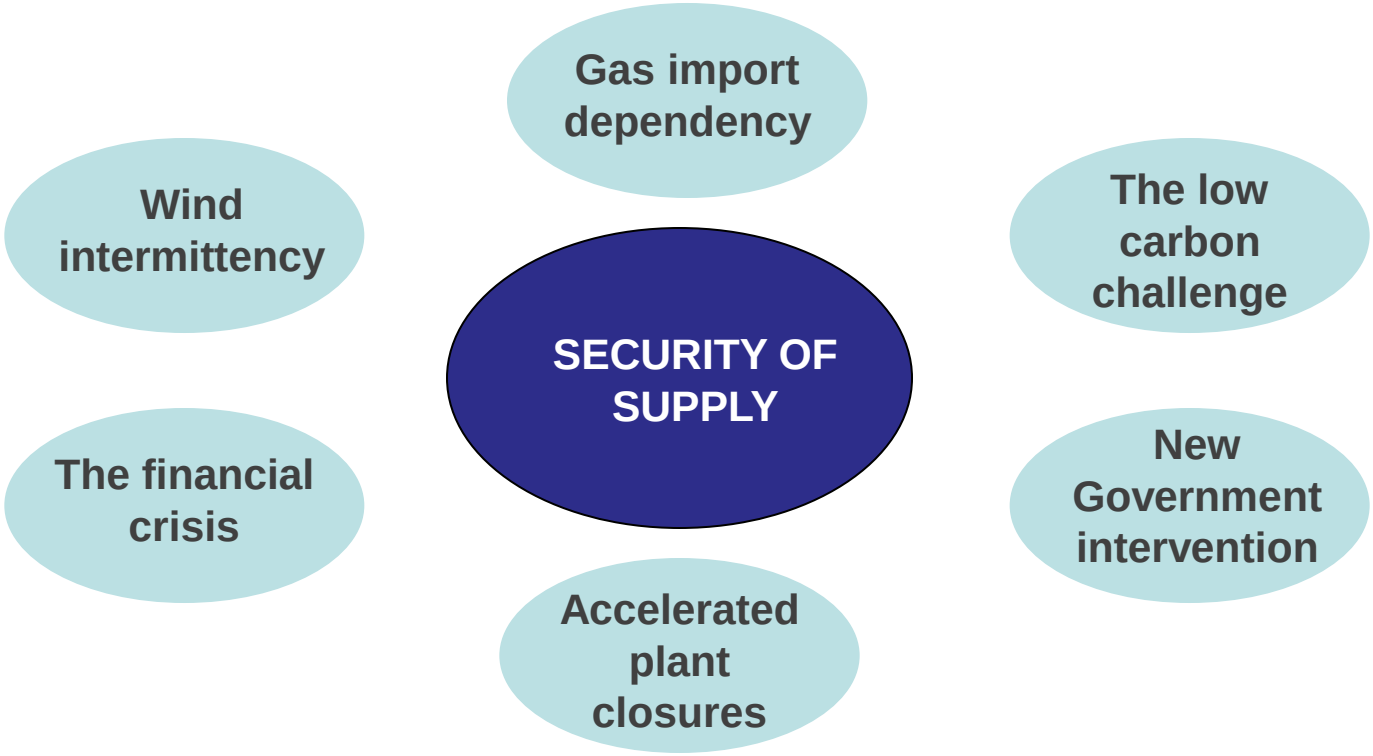
TODAY'S PRESENTATION

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

CONSIDERED AND TIMELY

Project Discovery

Can GB markets deliver secure and sustainable energy supplies?



TESTS SEVERE AND COMPLEX

Our approach

We cannot predict the future!

- Our scenarios are intended to be **plausible** and **internally-consistent** but also **diverse**
- These are **not forecasts,** but an **exploration** of possible outcomes
- We **assume** that markets respond to price signals
  - So our scenarios do not by themselves tell you if markets can deliver
- We are interested in **resilience** so we need to explore shocks through "stress tests"
- Our scenarios are **not policy choices** but reflect a global context

UNCERTAINTY AND RISK ANALYSIS AT THE HEART OF OUR METHODOLOGY

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.

THERE IS A HUGE RANGE OF UNCERTAINTY

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

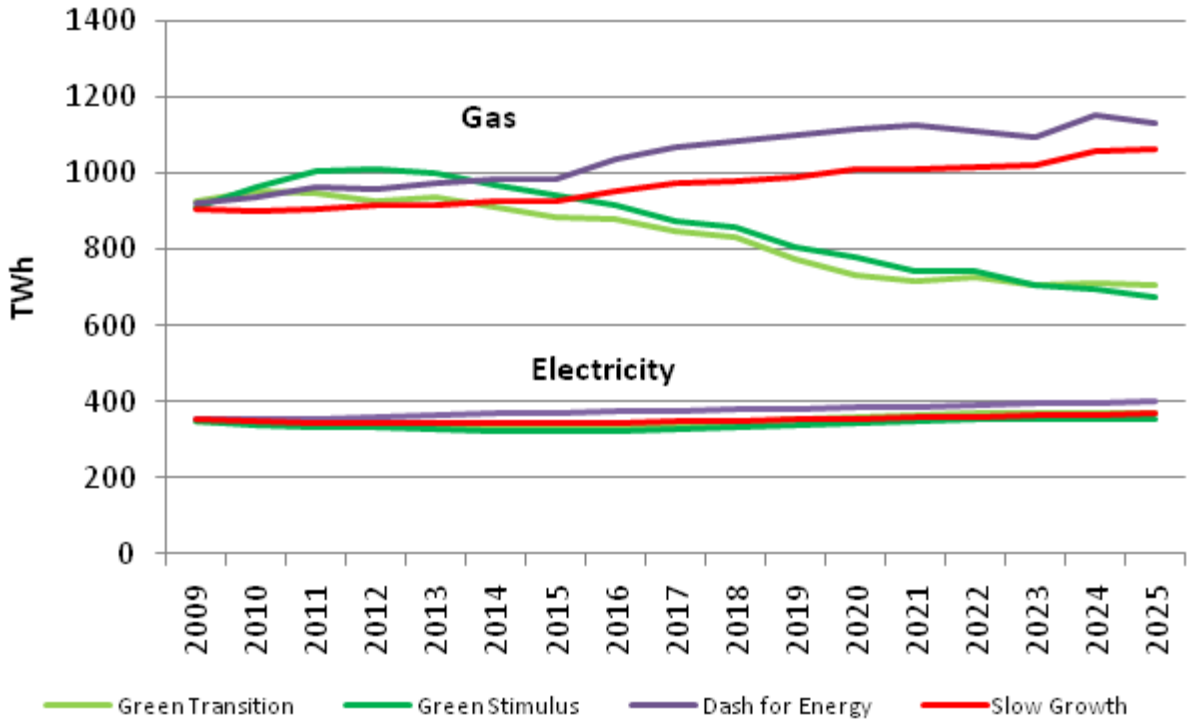
Headline themes from four scenarios

Good news	Emissions down from 2005 levels: Between -12% and -43%
Bad news	Domestic bills up from 2009 levels: Between +14% and +25%, by 2020 …but possibly up to +60% in the interim

Thematic news
Gas import dependence up in all four – but in two we have stable import demand from the middle of the next decade.
Investment up in all four (£95bn - £200bn).
In two out of four significant risk to 2020 climate change objectives and new nuclear not of much impact.
The two Green Scenarios assume new nuclear and CCS are operational by 2020.
Large uncertainty on gas demand.

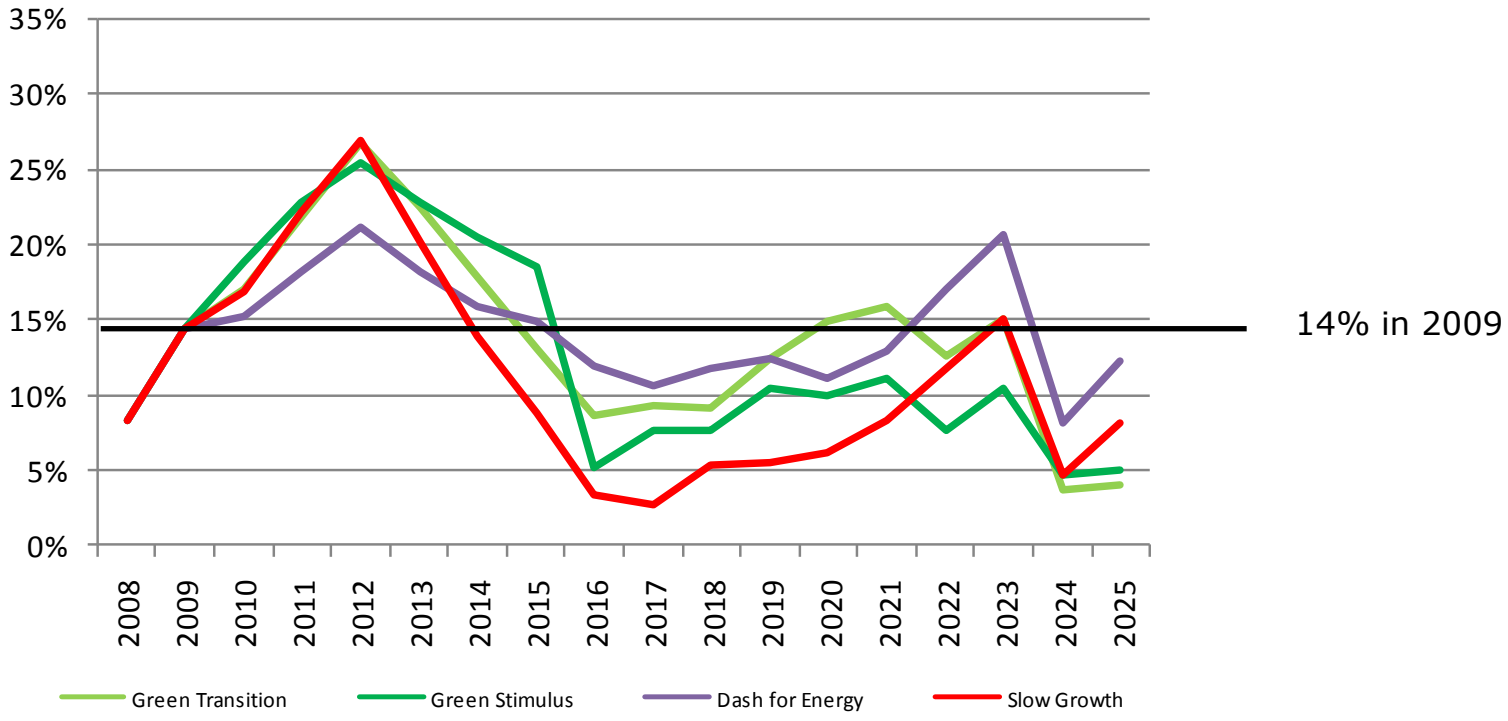
SEE APPENDICES

GB Energy Demand



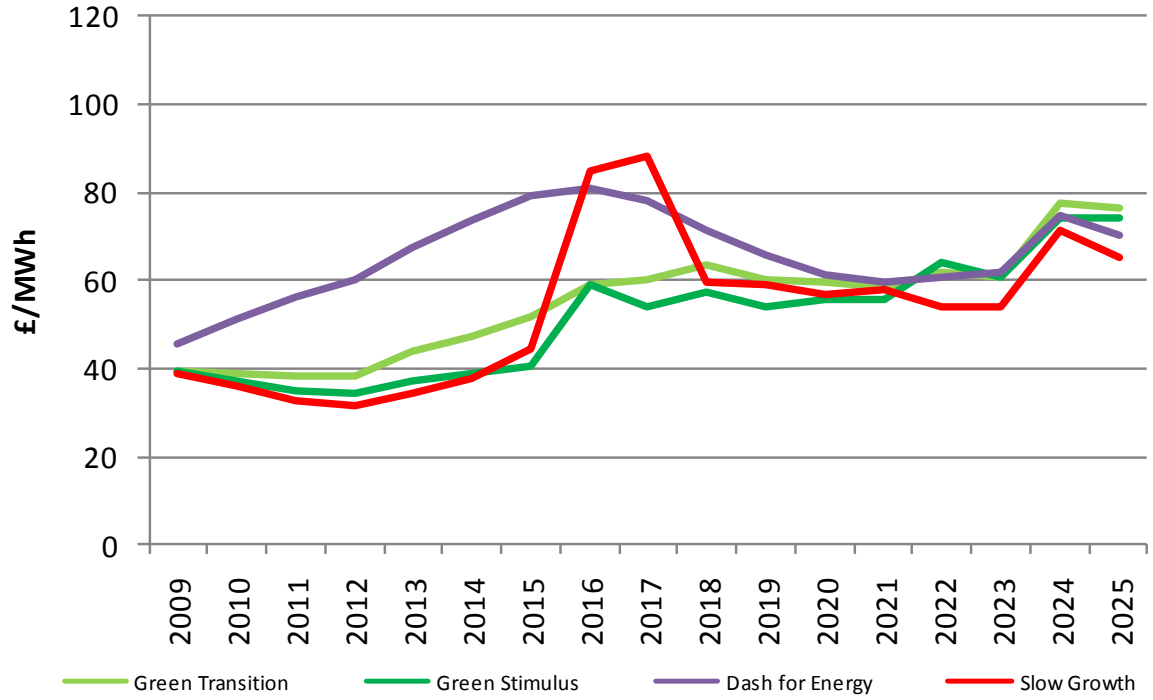
WIDE RANGE FOR GAS DEMAND

De-rated capacity margins (pre stress tests)



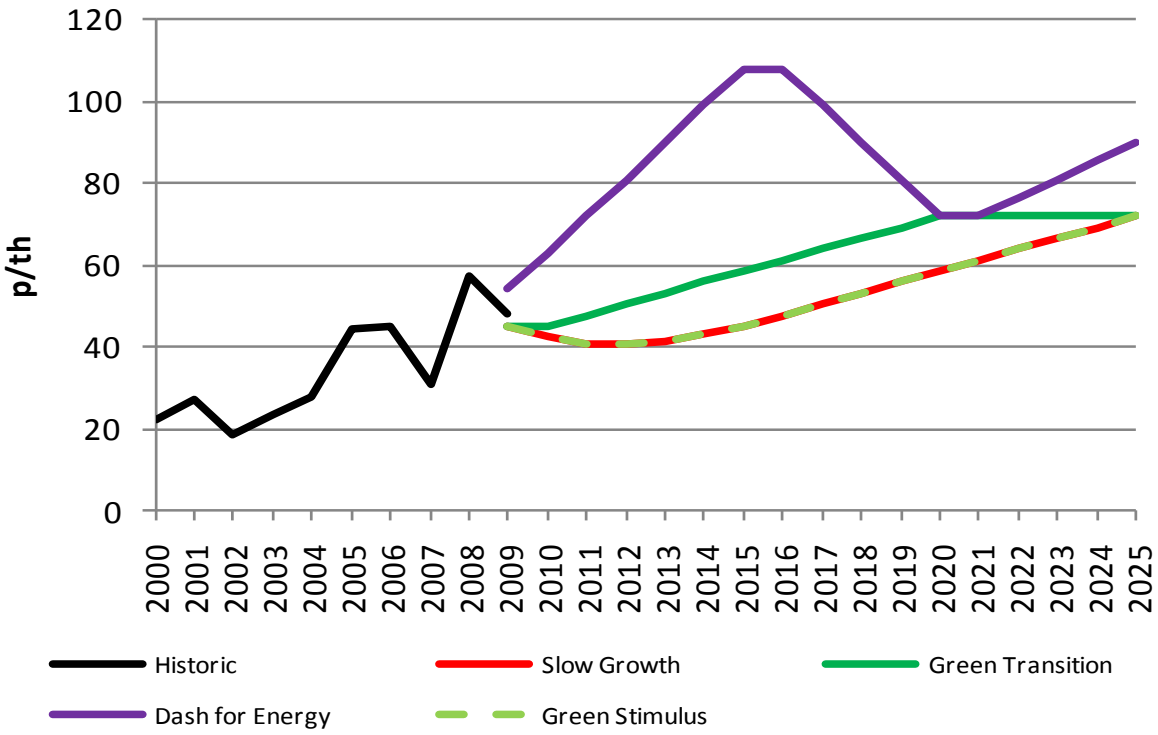
TIGHT MARGINS IN ELECTRICITY UNDER SOME SCENARIOS

Wholesale electricity prices



RISING PRICES A FEATURE – WITH A RISK OF PRICE SPIKES

Wholesale gas prices



FAILURE TO DEVELOP RENEWABLES COULD LEAD TO HIGH GAS DEPENDENCY

Domestic energy bills under the four scenarios

	By 2020
Green Transition	+23%
Green Stimulus	+14%
Dash for Energy	+25%
Slow Growth	+22%

Note: changes shown in real terms

THESE RISES MAY BE PARTIALLY OFFSET BY DEMAND SIDE RESPONSE

Stress-test – Traffic lights

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 🔴

THE "REDS" CURRENTLY OUTWEIGH "GREENS"

There is no fundamental reason why appropriately designed markets cannot deliver secure and sustainable energy supplies. But …

Given new interventions and sustainable canvas:

- Do our **current market arrangements** deliver the correct incentives?
- Even if they do, are there **practical reasons** why markets can't deliver security of supply by themselves?
- Can GB arrangements ensure security of supply when they are **dependent on global gas markets,** which may not operate in a way we like to do business?

KEY QUESTIONS ASKED IN PROJECT DICSOVERY

What comes next?

- Are there shortcomings in current arrangements that need to be addressed?
- Are the structures in the current arrangements still "good enough"?
- Can market arrangements still 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?

EXPECT TO PUBLISH INITIAL FINDINGS EARLY 2010

APPENDICES

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 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 – 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

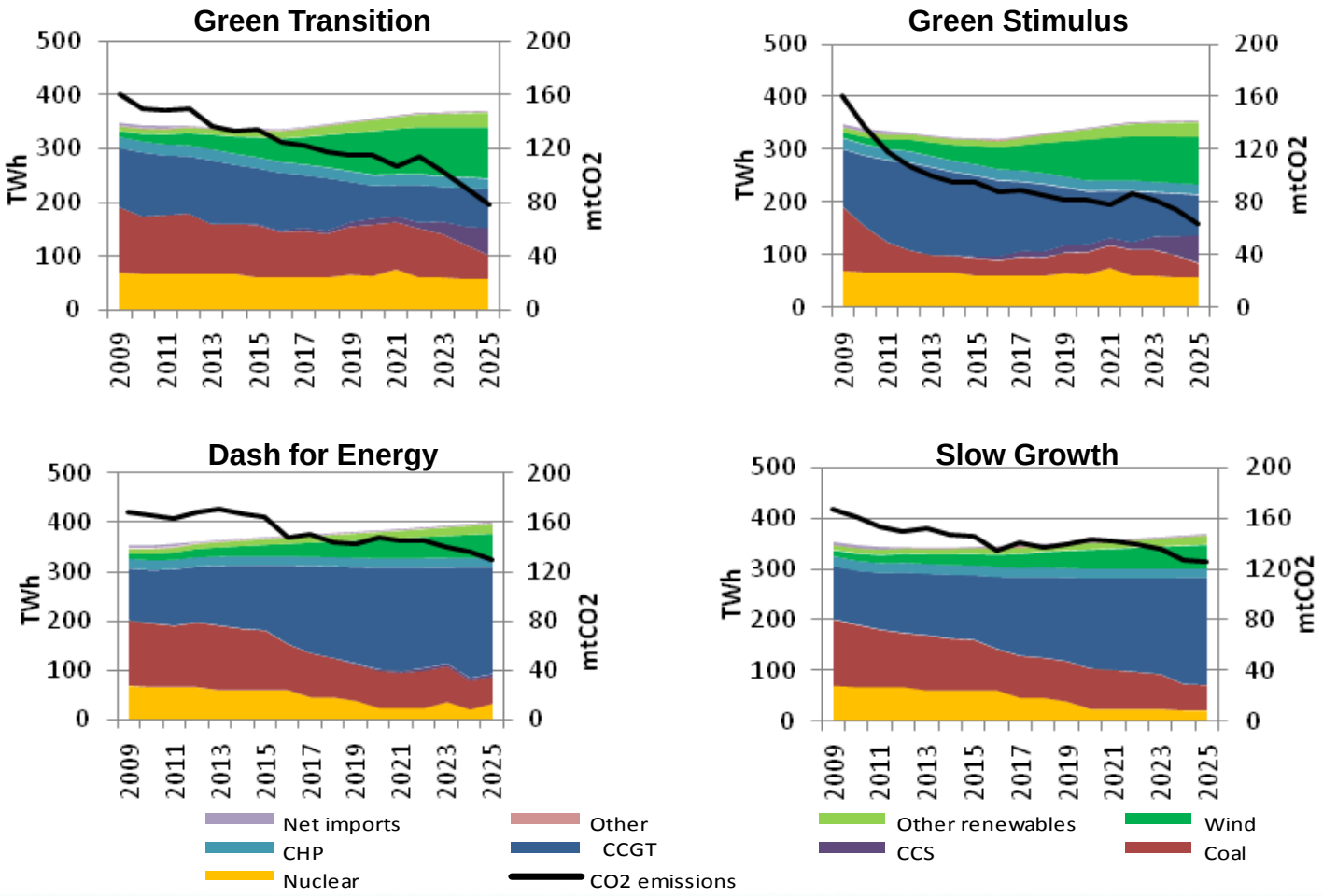
In this scenario….

- 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

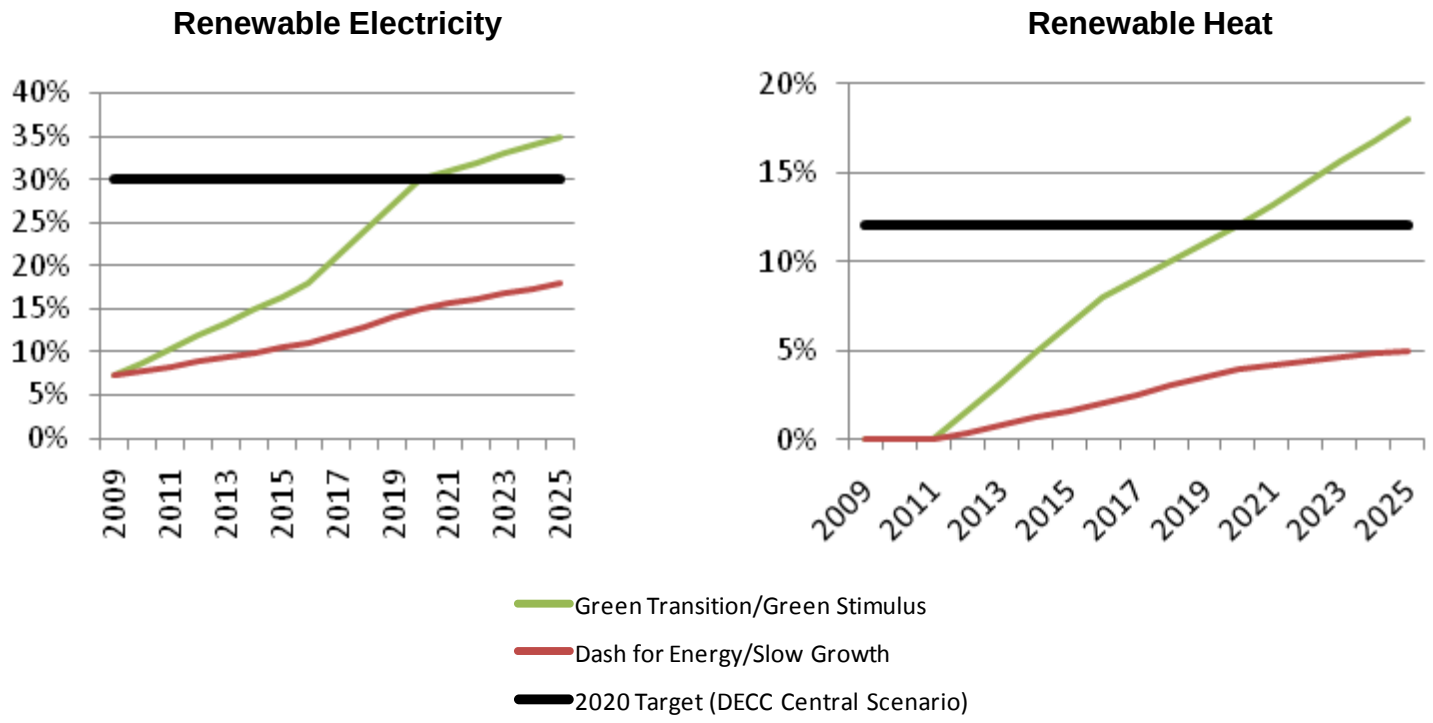
Key features

- 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.

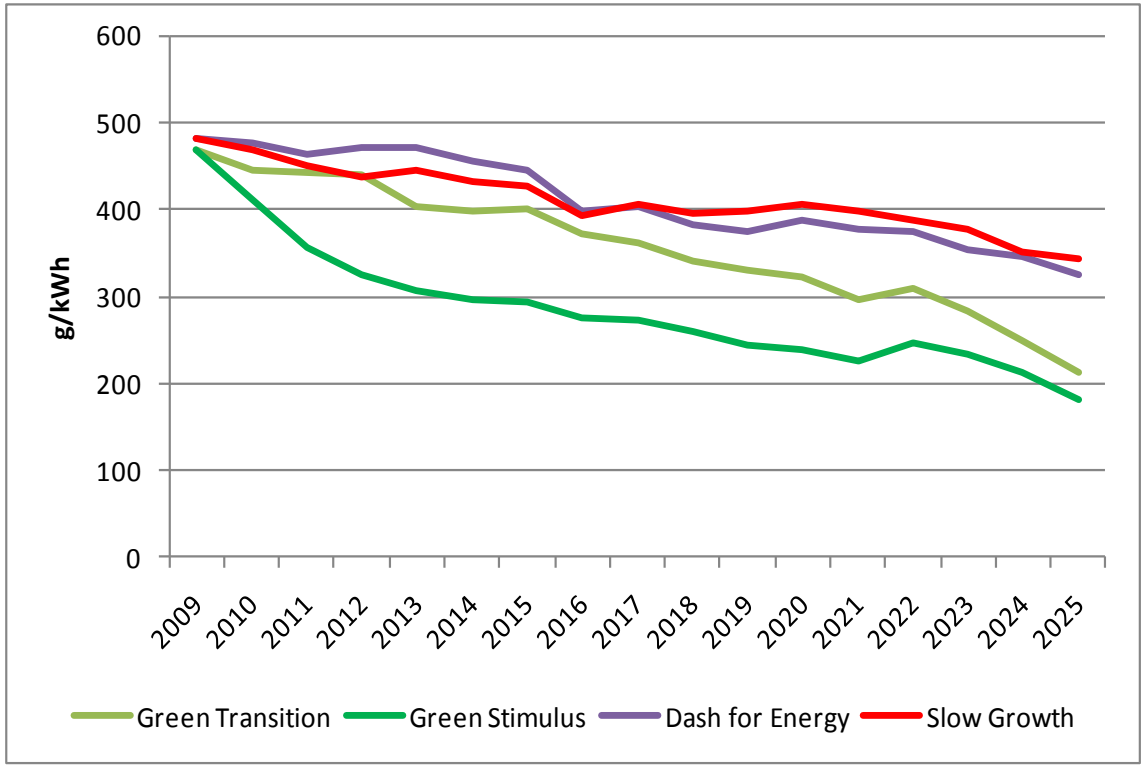
GB Generation output and carbon dioxide emissions from the generation sector



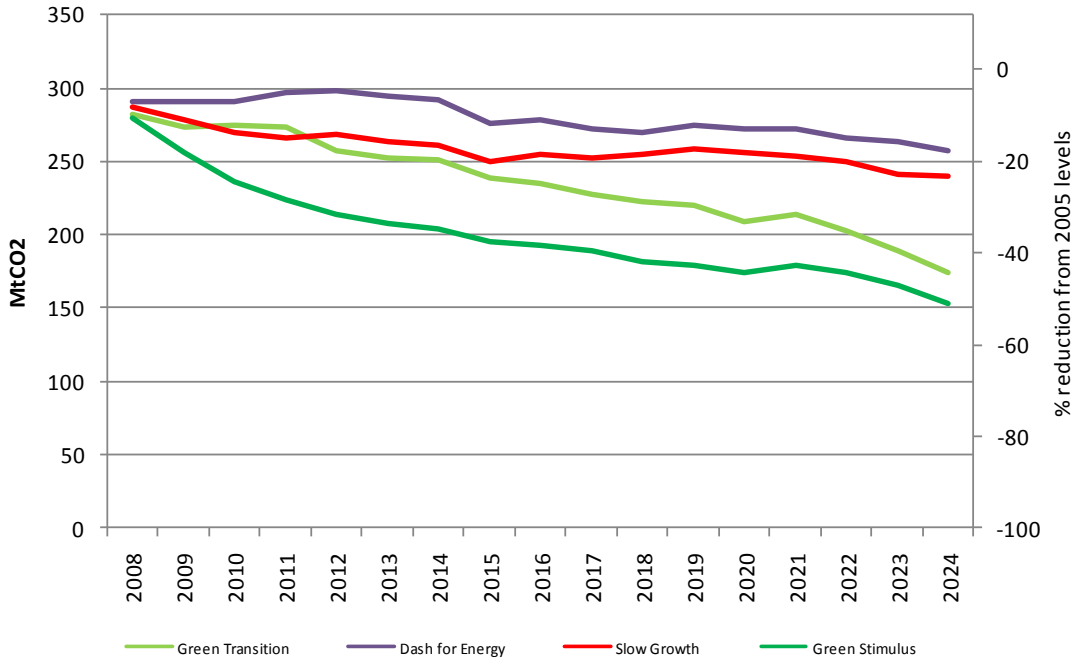
Renewable Heat and Electricity Penetration Assumptions



Carbon intensity in the GB Generation Sector



Combined Carbon Dioxide Emissions from the GB Generation and Gas Sectors



CLOSING COMMENTS AND Q&A

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Promoting choice and value
for all gas and electricity customers