Keeping the lights on - The Role of Gas in the Energy Mix

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Topics for today

• What is the role for gas in the UK energy mix?
• Government mixed messages
• Energy Bill and EMR
• Gas generation strategy – call for evidence
• What is needed?
What is the role for gas in the UK energy mix?

- Is gas a transition or bridge fuel or a destination fuel?
- Government appear to have an ambivalent position
- Sometimes gas is presented as a necessary evil to allow the transition to a low carbon energy strategy where gas:
  - Fills the short term gap in electricity generation caused by the LCPD and retirement of nuclear plants
  - Provide back up to intermittent renewable generation eg wind
  - Needed in the heat sector where gas dominates (>80%)
- But by 2030/2040 gas is consigned – along with other fossil fuels – to history
- At other times gas – with CCS – is described as a destination fuel
Gas as transition fuel – the problems

• Renewable generation technologies still more expensive and likely to remain so for some time
• Support framework not bringing forward sufficient renewable capacity quickly enough
• Will gas fired generation be built where its future is limited to running at declining low load factors?
• How can gas in the heat sector be replaced by renewables at reasonable cost?
• Will global gas suppliers consider the UK (and wider EU market) as attractive gas markets in future?
Gas is to blame?

• Two studies released by DECC
• Household energy bills – impacts of meeting carbon budgets – Committee on Climate Change – December 2011
• Fossil fuel price shocks and a low carbon economy – Oxford Economics – December 2011
Gas is to blame for rises in energy bills

• Historic energy bill increased over 2004 to 2010 increased by 75%
• Mainly due to increase in wholesale gas prices
• Only 7% of the increase related to low carbon measure
• Another 7% due to increasing T&D costs
• Therefore, over 80% of the increase was un-related to low-carbon measures
• Looking forward, CCC claim that policies needed to achieve a low-carbon economy will add a further £110 to bills by 2020 – due to support for investments in low-carbon generation
• Energy bill in 2020 estimated to be around £1,085 p/a – same as 2010 – with total costs of £130 in bill due to low-carbon investments with another £60 due to support for energy efficiency measures
• Conclusion – support costs are largely offset by financing low-carbon investments and increased gas bills
Critique

- Energy bills have increased over 2004 to 2010 due mainly to increased wholesale gas prices
- What is the counterfactual?
- What would energy bills have been if gas was excluded and replaced by renewable technologies over this period?
- Probably – 200 to 300% more expensive?
- CCC estimates of bills out to 2020 suspect and very sensitive to DECC projections of gas prices
Fossil fuel shocks

• Moving to a low carbon economy will reduce our dependency on fossil fuels
• Energy prices are increasing and becoming more volatile
• High and volatile fuel prices have a negative effect on an economy of a country like UK which imports oil and gas
• Uses macro models to try to estimate the impact on GDP of fuel price shocks
• Concludes that if we use less fossil fuels in a low carbon future we will face lower impacts on our GDP caused by price shocks
Critique

- Impact of shock estimated to be around 1% reduction in GDP in 2010 and 0.9% in 2020 in business as usual scenario
- This reduces to 0.7% in BAU in 2050 and 0.4% reduction in low carbon scenario
- Problems of macro economic modelling make these estimates very suspect
- Conclusion that if we use import less fossil fuels we face less of an impact to fuel price changes is pretty obvious
- Report does not address relative position of UK compared with its competitors who will be in the same position
The policy proposals

• Energy Bill and EMR
• Support of new CCGTs via grandfathering of Emission Performance Standard (450g/kWh) until 2045
• Capacity Market – will allow CCGTs to bid in to provide support to the market ie back up intermittent renewables and perhaps supplement their income which will be lower due to the lower load factor running
• CfDs – contracts for difference – to support low carbon generation including renewables, nuclear and CCS
Gas generation strategy

• Call for evidence
• Aims to:
  – Set out the role of gas in the electricity market
  – Attract investment in gas generation
  – Ensure energy security
  – Meet the UK’s carbon reduction targets
  – Make the best use of the nation’s natural resources
UK Gas Supply Q1 2012

Map: UK imports and exports of gas Q1 2012

Source: DECC UK Energy Statistics June 2012
UK – gas supply and demand
2012 Q1 gas demand down 11% overall
Gas use in power generation down 30%
Spark spread poor
Coal use up 20%
Renewables up 39%

Source: DECC Energy Trends Quarterly Tables
Renewables installation now accelerating

- Onshore wind up 51%
- Offshore wind up 50%
- Hydro up 43%
- Total renewables installed 11.1 TWh up 39%
- Gas fired generation will be needed to provide back up to intermittent generation

Source: DECC Energy Statistics June 2012
What is needed?

• EMR must provide a framework which encourages new CCGT build and a revenue stream out 20 years plus

• Government and industry must move urgently to demonstrate the technical and economic viability of CCS for CCGTs

• How do we decarbonise the heat sector where gas provides 80% of energy?

• Increased emphasis on long term relationships with gas suppliers around the world
Summary

• The position of gas in the energy mix is uncertain
• Government and policy makers are confused as to whether gas is a necessary evil or the future
• The Energy Bill and EMR are the pathway at this important time for energy industry
• Vital need to ensure that a realistic and flexible energy strategy is developed for the UK
Thank you