



British Embassy  
Tokyo

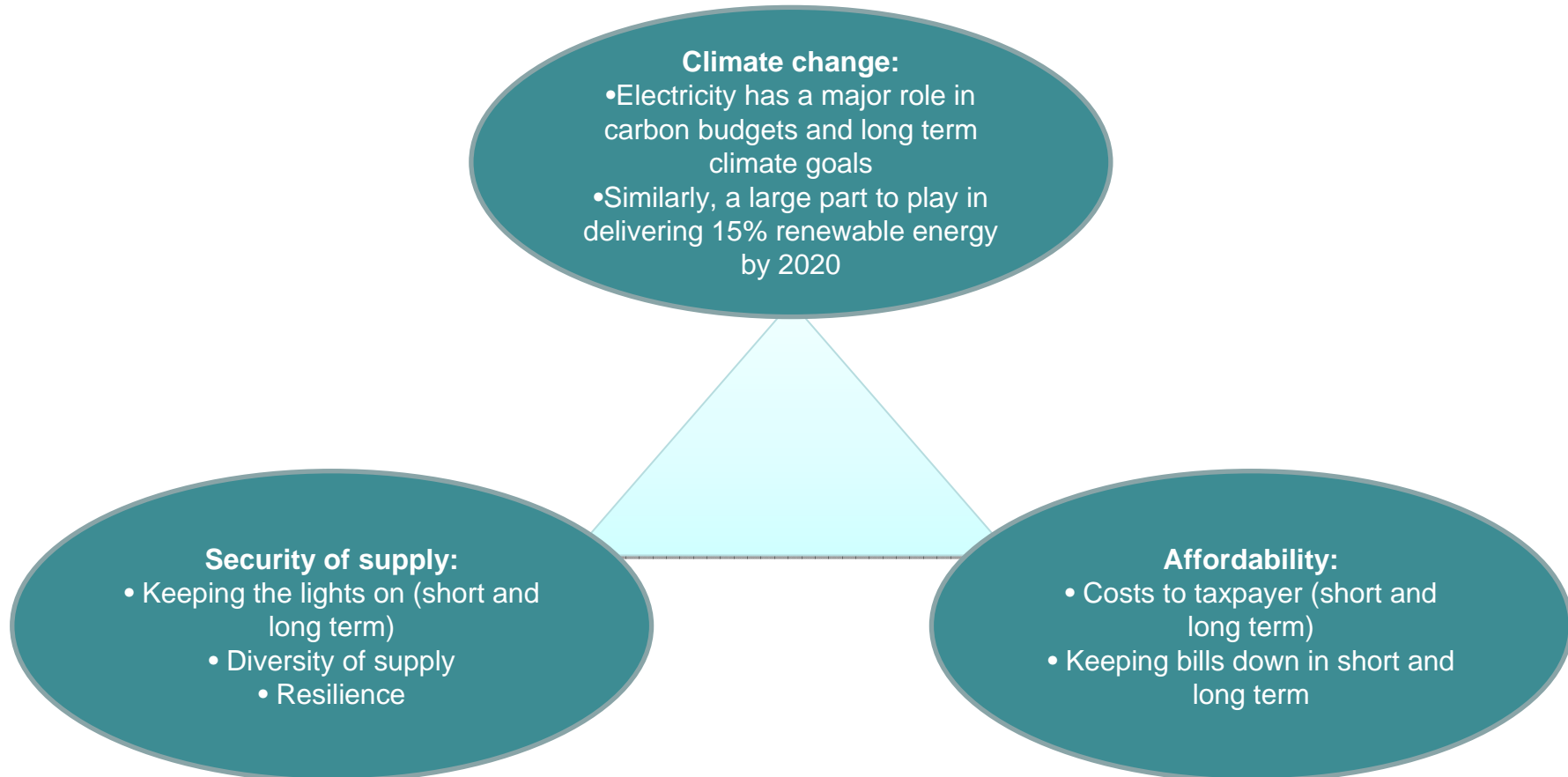


# The role of gas in an ideal energy mix - a UK perspective

Richard Oppenheim  
Head of Climate Change and Energy  
First Secretary  
British Embassy, Tokyo  
[richard.oppenheim@fco.gov.uk](mailto:richard.oppenheim@fco.gov.uk)

September 2012

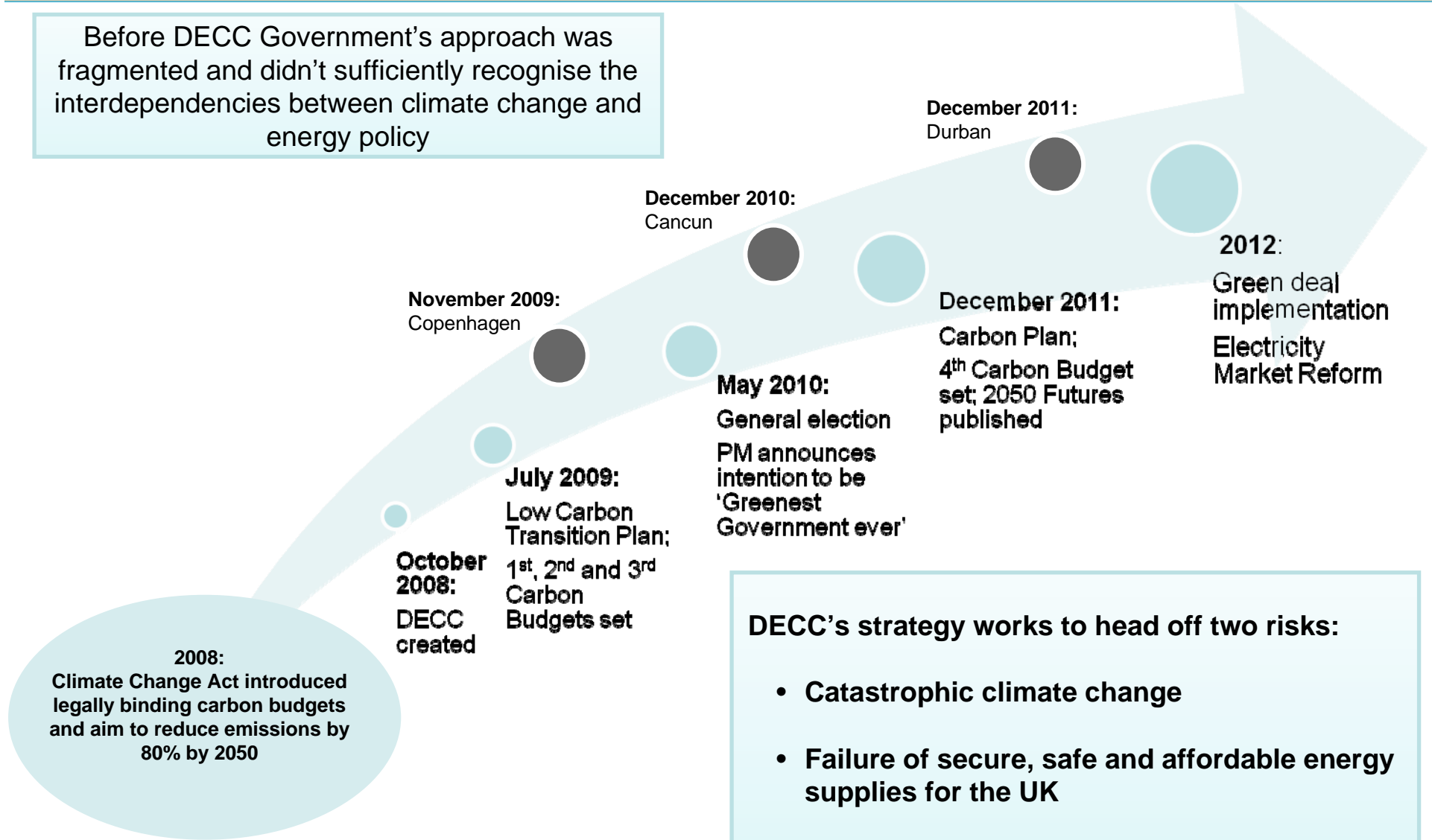
# UK Energy Objectives



# DECC was created in 2008 to ensure a coherent strategy on energy and climate change



Before DECC Government's approach was fragmented and didn't sufficiently recognise the interdependencies between climate change and energy policy



**2008:**  
Climate Change Act introduced legally binding carbon budgets and aim to reduce emissions by 80% by 2050

**October 2008:**  
DECC created  
1st, 2nd and 3rd Carbon Budgets set

**July 2009:**  
Low Carbon Transition Plan;

**May 2010:**  
General election  
PM announces intention to be 'Greenest Government ever'

**November 2009:**  
Copenhagen

**December 2010:**  
Cancun

**December 2011:**  
Durban

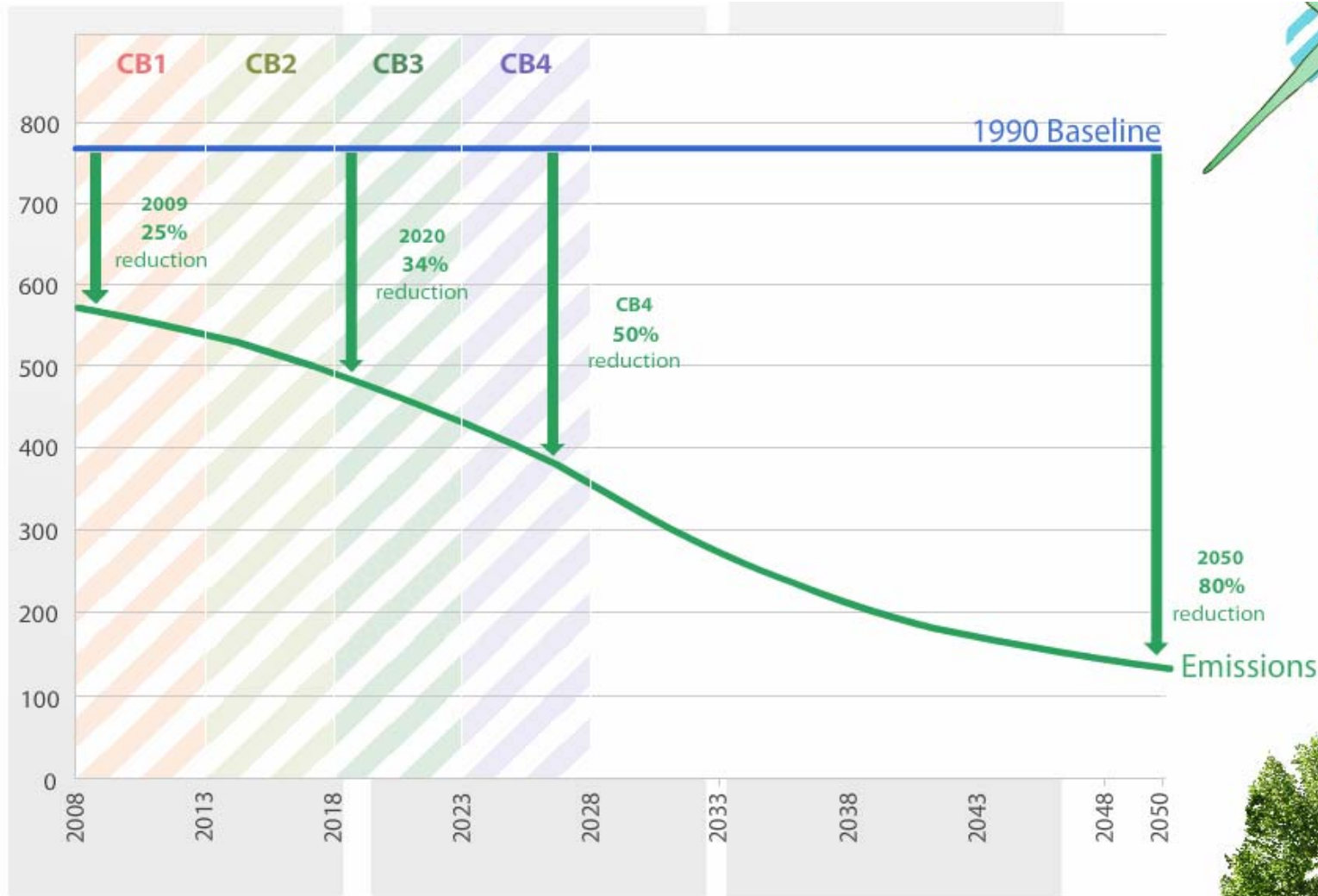
**December 2011:**  
Carbon Plan;  
4th Carbon Budget set; 2050 Futures published

**2012:**  
Green deal implementation  
Electricity Market Reform

**DECC's strategy works to head off two risks:**

- Catastrophic climate change
- Failure of secure, safe and affordable energy supplies for the UK

# Carbon Budgets and the 2050 target set out a legally binding framework for the UK's GHG emissions reductions

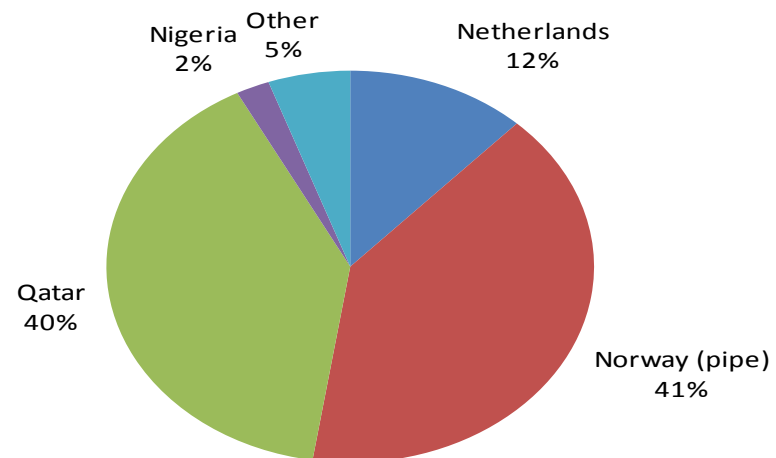


## Why gas? Gas is a secure and relatively clean and cheap supply source.....

- **Gas is plentiful** (compared to oil) both in terms of current supplies and future supplies (large scale reserves)
- **Strong market framework – delivered diversity, flexibility,** and increased import and storage capacity (500% and 30% increases in the last decade respectively). 4 storage projects under construction, & a further 9 with planning permission
- Gas generation is **flexible**, has **low fixed costs**, is **quick to build**
- Gas has **lower GHG emissions** than coal
- Very significant **business & job opportunities**

Imports cover around half our gross demand. They are drawn from a range of source countries, by pipeline and by LNG.  
LNG markets accounted for almost half of our imported gas in 2011

**UK gas imports by origin (2011)**

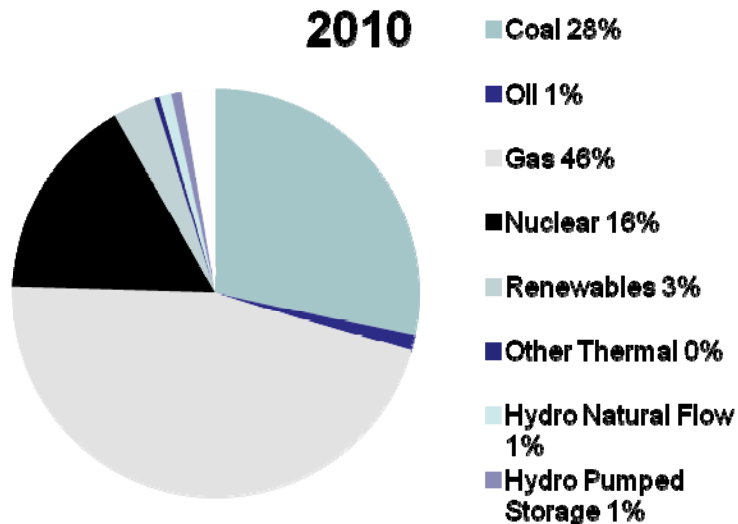


Source: DECC Energy Trends

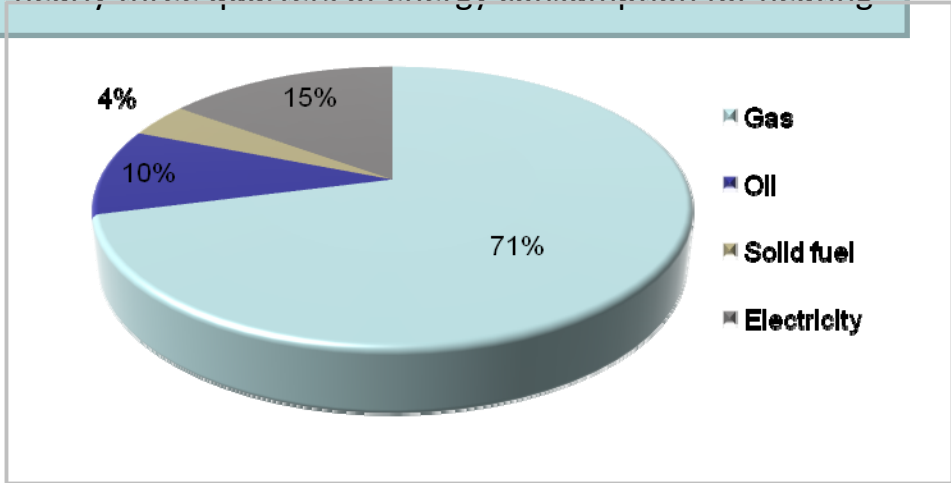
# Gas plays crucial role satisfying UK energy demand now.... Some facts and figures...



UK electricity generated in 2010: 46% from gas



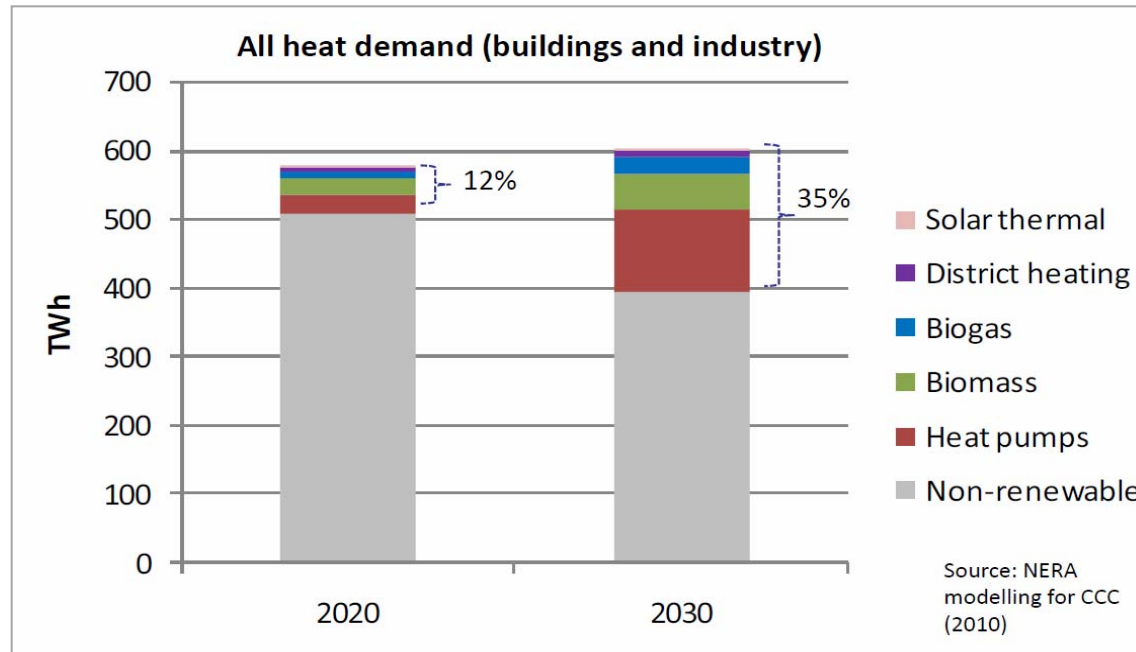
**57% of gas use is for heat** - currently gas represents nearly three quarters of energy consumption for heating



Energy consumption for heating purposes by fuel type (2008)  
{this needs UPDATING}

- We consume more natural gas than any other fuel
- In 2011, gas accounted for **37%** of UK primary energy use.
- Gas has an important role as a consumer fuel both directly for heating and indirectly for electricity provision through gas fired power stations. In 2011 **57%** of our gas was used for heat, providing 68% of the UK's heating needs.
- A third of our gas use was for power generation in 2011. This represented **40%** of electricity generation gas uses (down from 46% in 2010).
- In general, gas sets the electricity price for most of the year, so fluctuations in gas plant costs are reflected in wholesale electricity prices

# Gas projected to continue to dominate heat supply despite the rollout of renewable heat technologies....



- The Committee on Climate Change projections through the 2020s show significant deployment of renewable heat technologies but fossil-fuel, and predominantly gas, would still meet around two-thirds of heat demand by 2030.

...and will be key to managing pressures on electricity generation capacity.

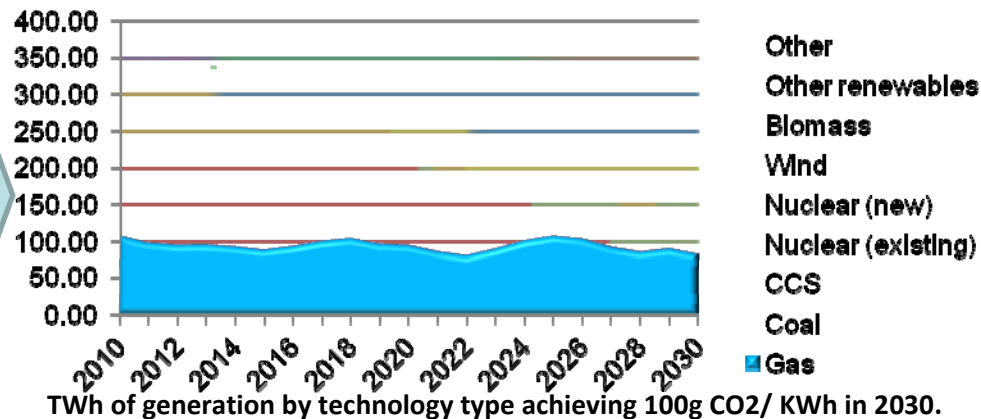
**There will be significant plant closures...**

- Ageing nuclear, and 12GW of coal and oil plant closing by end 2015 due to Large Combustion Plants Directive

**... gas will play a key role in managing this**

- gas-fired CCGT under construction
- Flexible gas plant will be required as back-up for intermittent renewables

Redpoint modelling for EMR shows gas playing a flexible role as we transition to a low carbon future

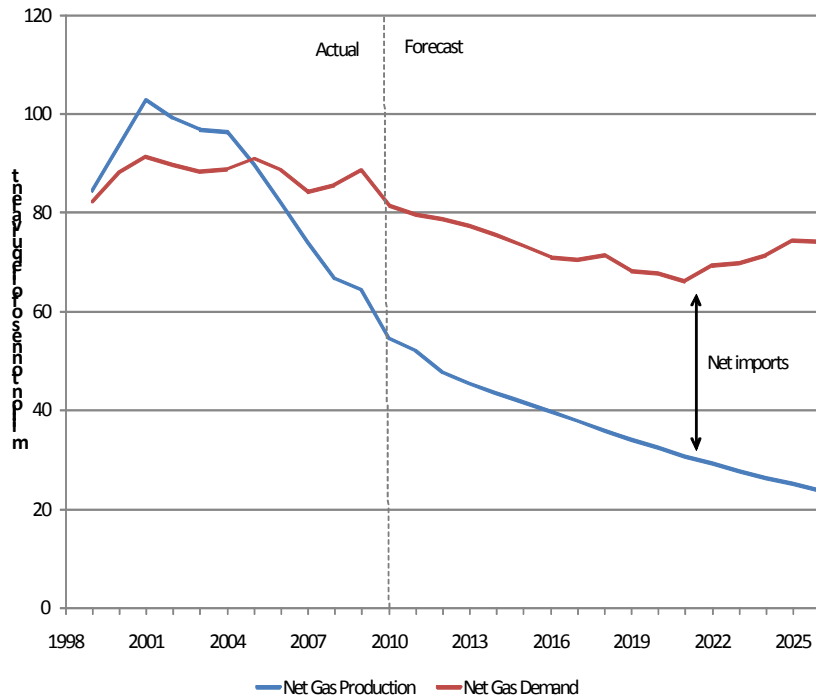


EMR will deliver new low carbon capacity and maintain a role for gas.

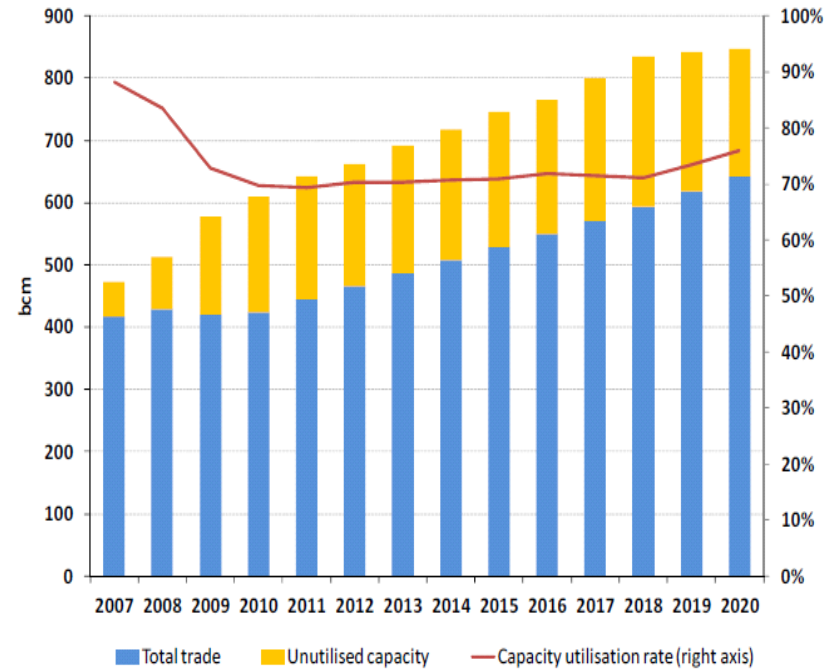


# UK's import dependency will rise The global supply picture is benign

Domestic production is in decline – so our reliance on imports is increasing



The IEA predicts spare gas transport capacity globally for the next decade



Source: IEA.

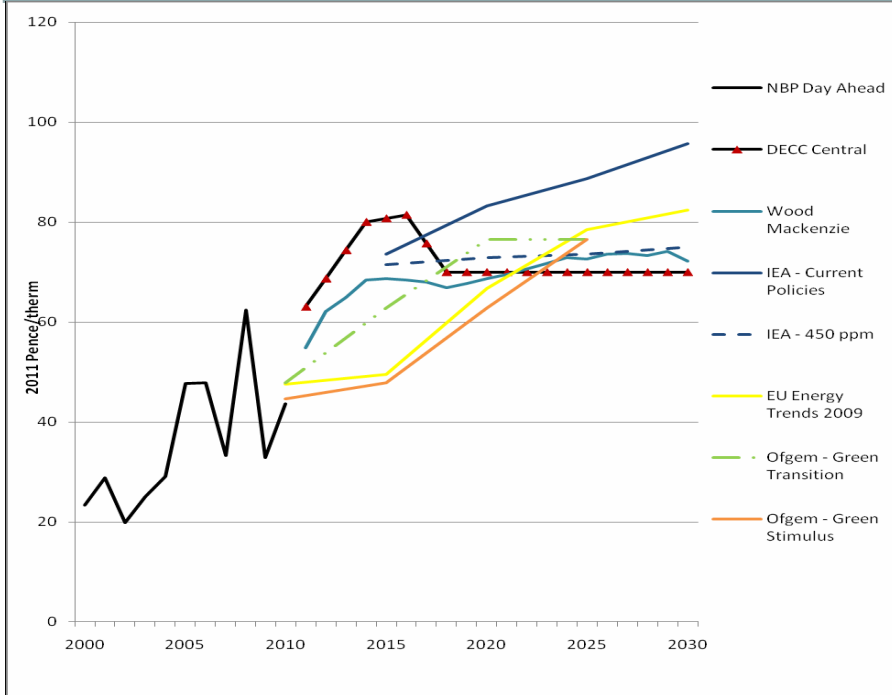
International gas markets will become increasingly important for the UK

# However there are short term risks and uncertainties around gas prices

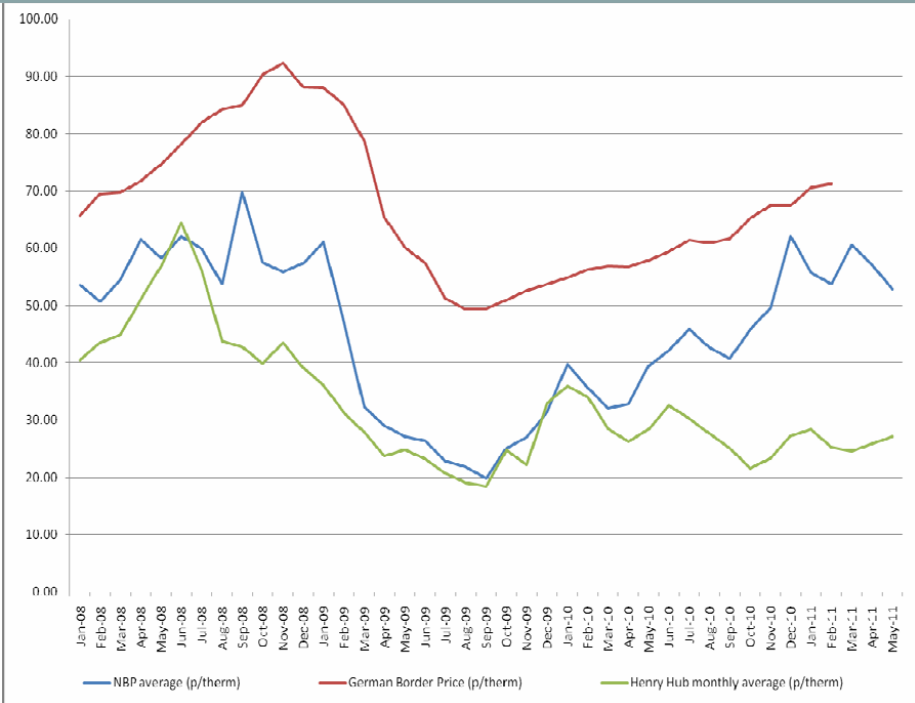
There are risks of rising gas prices in the short term

- recent cold winters,
- supply events (MENA / Japan)

There are widely differing views on the future direction of gas prices...



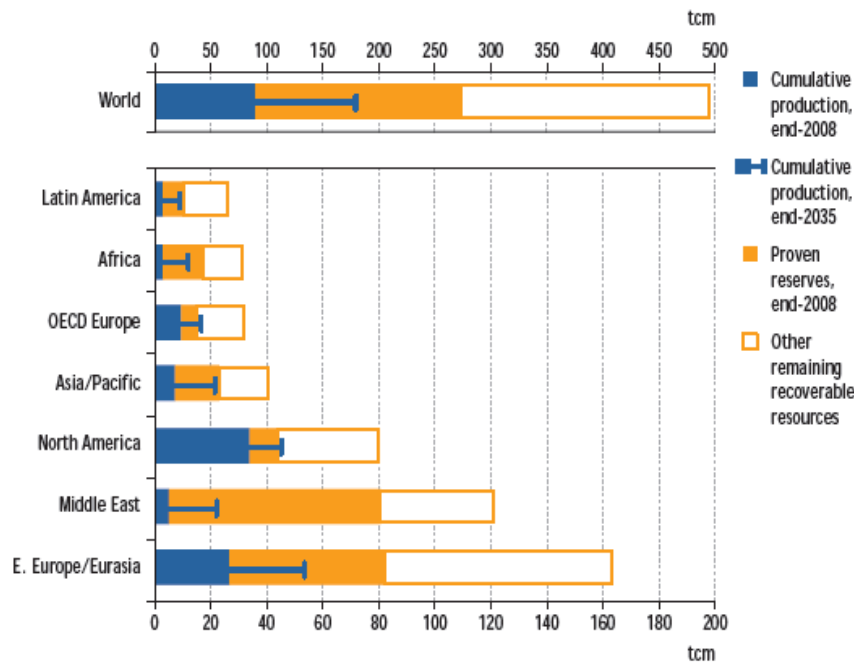
...particularly on whether UK gas prices will follow those in the US and delink from oil prices



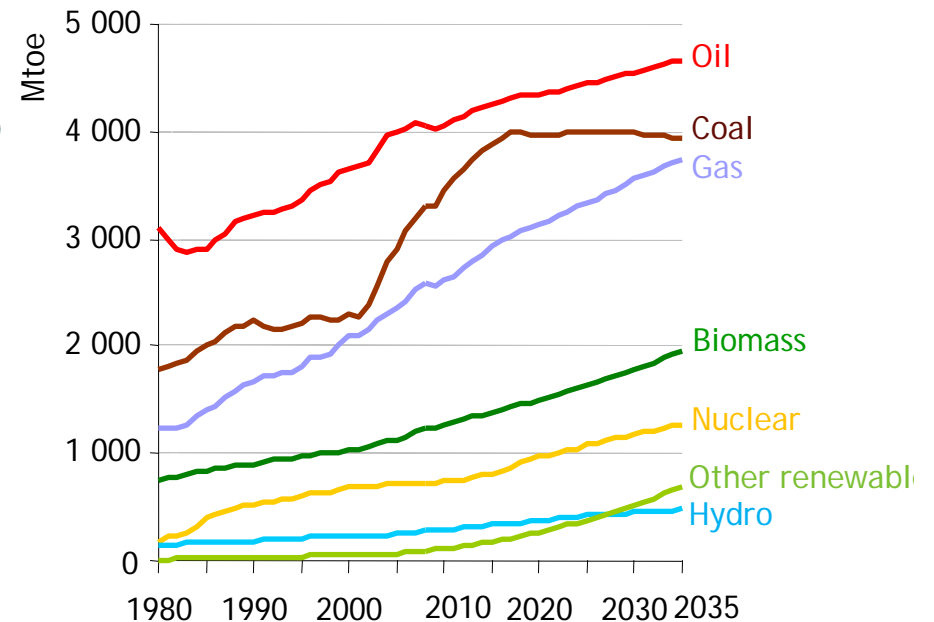
# In the longer term the global gas supply picture is good but demand will grow rapidly too

- Remaining recoverable reserves of conventional gas are equivalent to 130 years of current consumption
- Recoverable reserves of unconventional gas could be equivalent to another 125 years of current consumption (source: IEA)

- However the IEA forecast gas markets are likely to become tighter. Global demand for gas increases more rapidly than other fuels
- And there are questions over whether the US shale gas experience can be replicated elsewhere, and environmental / emissions impacts



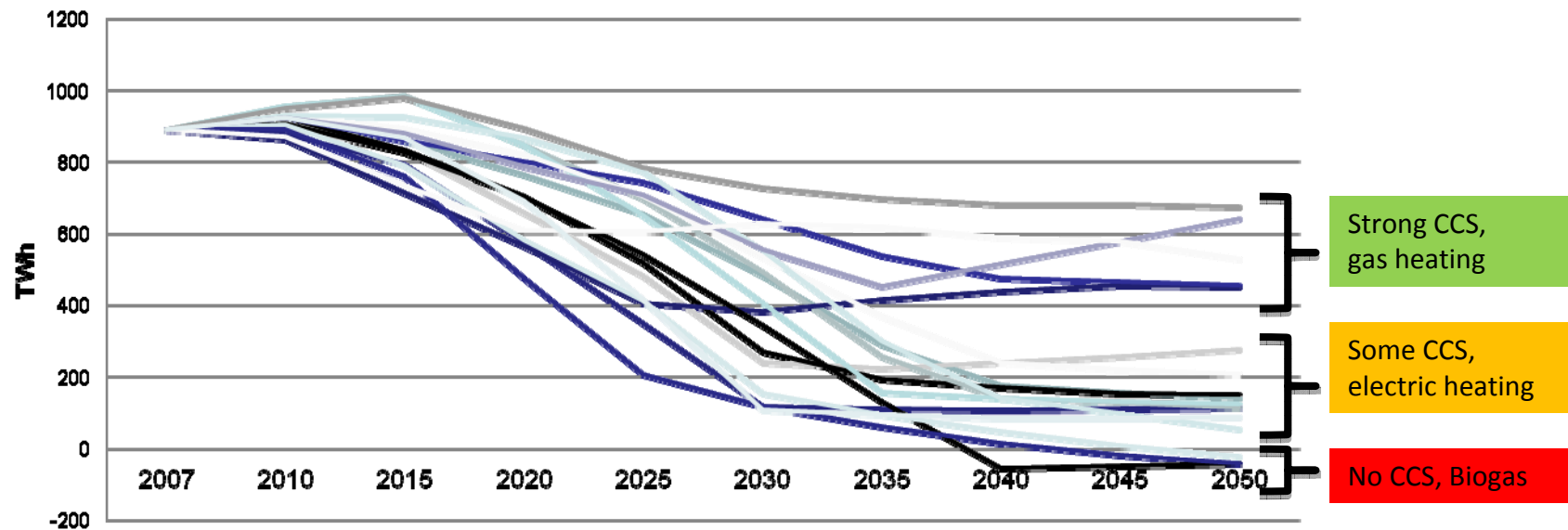
World primary energy demand by fuel (IEA New Policies Scenario)



# To 2050, CCS is critical...



## Natural Gas Domestic consumption by 2050 scenario



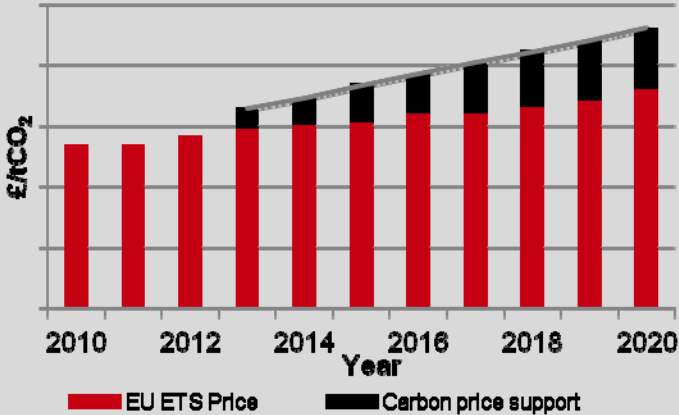
Source: HMG, 2050 Pathways Analysis, March 2011

2050 pathways suggest gas demand in UK could be up to 83% of current levels in 2030, and 72% in 2050, while meeting our carbon goals.

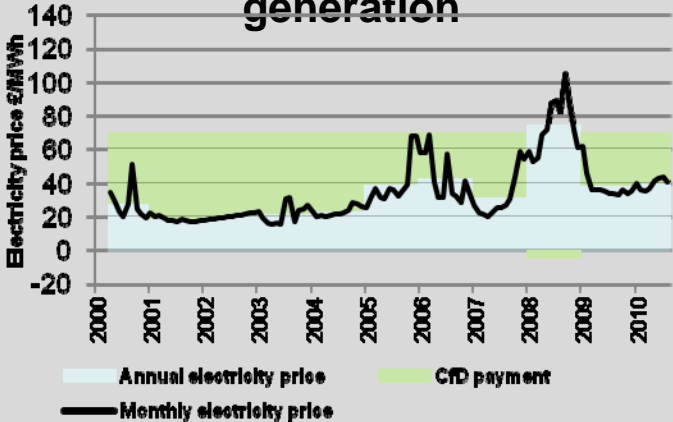
# Electricity Market Reform - a four point plan for power market transition



**Carbon price support**



**Long term contracts for low carbon generation**



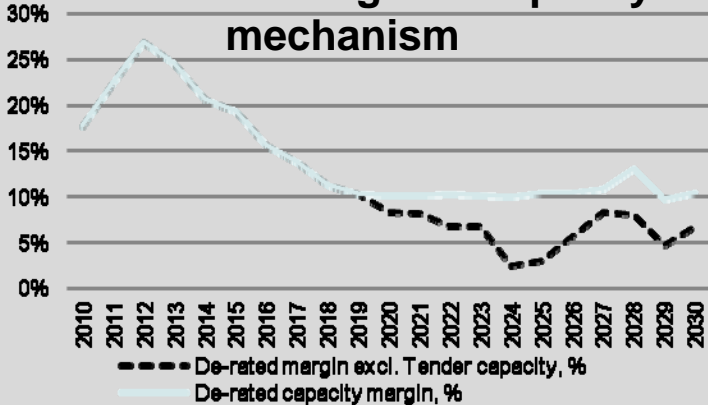
**EMR package**

**Emissions performance standard:**

**Set at 450g/KWH**

**Grandfathering arrangements/ time limit**

**Market wide/ targeted capacity mechanism**



# Gas in the UK - summary



## Now to 2030

- Gas plays a crucial role satisfying UK energy demand now...
- ..and is projected to continue to dominate heat supply despite the rollout of renewable technologies, and will be key to managing pressures on electricity generation capacity.
- Gas is currently a secure supply source with lower emissions than for coal, and cheap fixed costs and a continuing major role for gas to 2030 is broadly consistent with our emissions targets.
- However there are short term risks and uncertainties around gas prices
- UK import dependency will rise, but the global supply picture is plentiful and diverse.
- The level of the gas price will be important in considering the role of gas in the energy mix in the 2020s

## 2030s to 2050:

- Global gas supply picture is good but demand will grow rapidly too
- Unabated gas use will need to fall, although by how much is not clear
- Gas with CCS can have a long term role in the energy mix



British Embassy  
Tokyo

# Japan's Energy Policy Review



## New energy strategy – change for the better

- Investment in renewable energy good for energy security and crucial to achieving ambitious emissions targets
- Electricity Market Reform long overdue. Cheaper electricity, more flexible grid
- Japanese nuclear safety system to provide an independent and powerful regulator
- The speed and quality of nuclear plants improvements: visiting overseas experts have been evaluated these highly
- Japan's strengths in energy efficiency technologies, EV, solar and wind power generation are opportunities for economic growth
- To achieve 80% emission cut by 2050: decarbonisation of electricity supply is key



British Embassy  
Tokyo

# Japan's Energy Policy Review



## Energy policy can support Japan's climate change ambition

- Feed In Tariff from July 2012 is in the national interest
- Drastic shifts from high to low carbon energy source are happening globally
- Countries can choose to be leaders or followers in the low carbon transition
- Renewable energy promotion: electricity market reform and smart grid to increase flexibility, smart technology and open competition are important
- Asian super grid system: regional energy interdependence to enhance energy security





British Embassy  
Tokyo

# Conclusion



## Dealing with Climate Change and Energy is...

- Saving human life and livelihoods, not the planet
- Tackling climate change more economic than environmental
- Today's problem, not tomorrow's problem

**... and gas plays a crucial part.**



British Embassy  
Tokyo



***Thank you very much.***

For more information:  
[www.ukinjapan.fco.gov.uk](http://www.ukinjapan.fco.gov.uk)