UK Electricity Market Reform

The impact to generators & consumers

Tim Abraham, UK Department of Energy & Climate Change

19 March 2012

Our objectives for the electricity system mirror those for the wider system

Climate change:
- Electricity has a big role in carbon budgets and long term climate goals
- Similarly, a large part to play in delivering 15% renewable energy by 2020

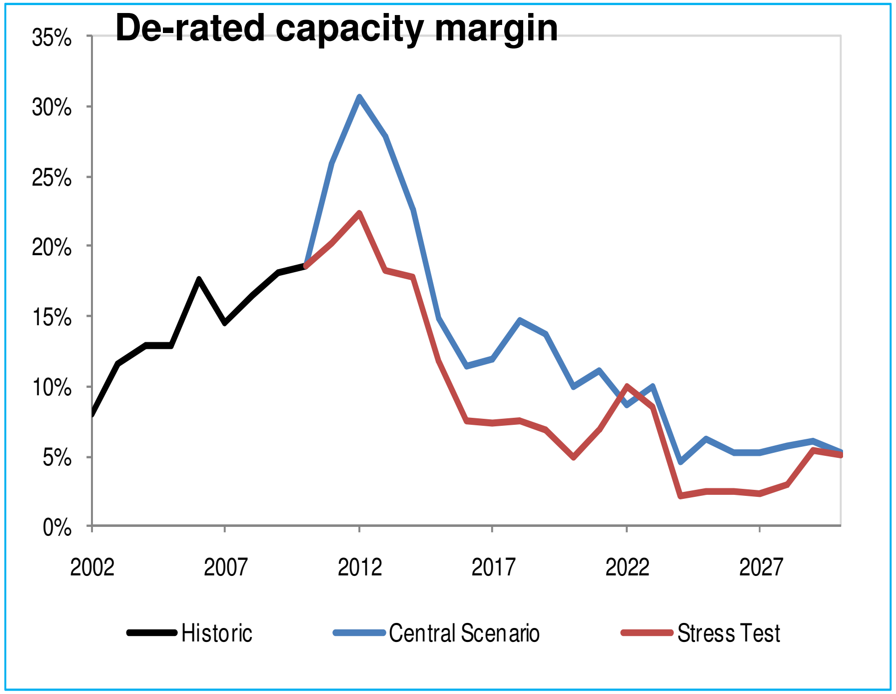
Security of supply:
- Keeping the lights on (short and long term)
- Diversity of supply
- Resilience
- Electricity demand may double by 2050

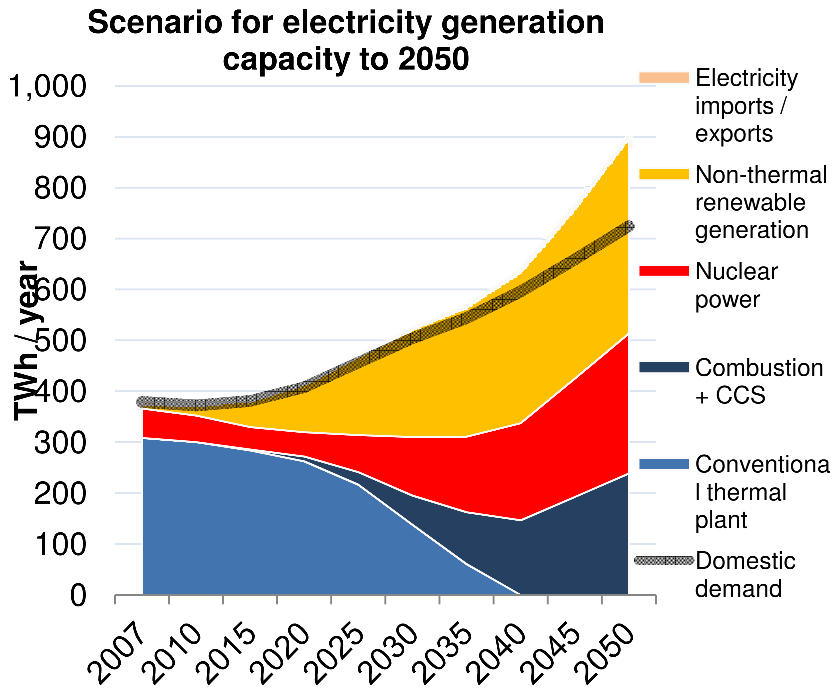
Affordability:
- Costs to taxpayer (short and long term)
- Keeping bills down in short and long term

The electricity market has worked well - but we need to make sure this continues as demand increases; and as we face supply and decarbonisation challenges

Security of supply:
Around a fifth of our plant will close by 2020

Tackling climate change:
Need to decarbonise power sector by 2030s





We need to manage these challenges at <u>least cost</u> to the consumer

DEPARTMENT OF ENERGY & CLIMATE CHANGE

The current electricity market arrangements will not meet these challenges

Scale of investment needed - £110bn in generation and transmission

Security of supply - ageing and polluting plant are being replaced with more intermittent/less flexible generation

Weak carbon signals – current price of carbon is weak meaning no clear signals for investment in low-carbon

No level playing field for low carbon

If we do nothing:

- Will not meet the scale of investment needed
- Risk of blackouts due to lack of capacity
  - Margins hit 5% with less generation and more intermittent supply
- Will not decarbonise fast enough to meet our C-budgets
- Consumers pay more for electricity than they need to

Our aim is transition to a world where low carbon technologies compete on cost

Long term vision:

An electricity market where low carbon technologies compete on cost

EMR puts in place the framework for transition towards this goal:

In particular, we have designed a market which :

- Maintains the current liberal wholesale market
- In addition, it puts in place new institutional and incentive arrangements to deliver the investment required to deliver secure low carbon power at least cost to consumers

The EMR White Paper and Technical Update set out our plan to reform the market and achieve our three objectives of secure, affordable and low-carbon electricity

There are four policy instruments in the reform package

Contracts for Difference

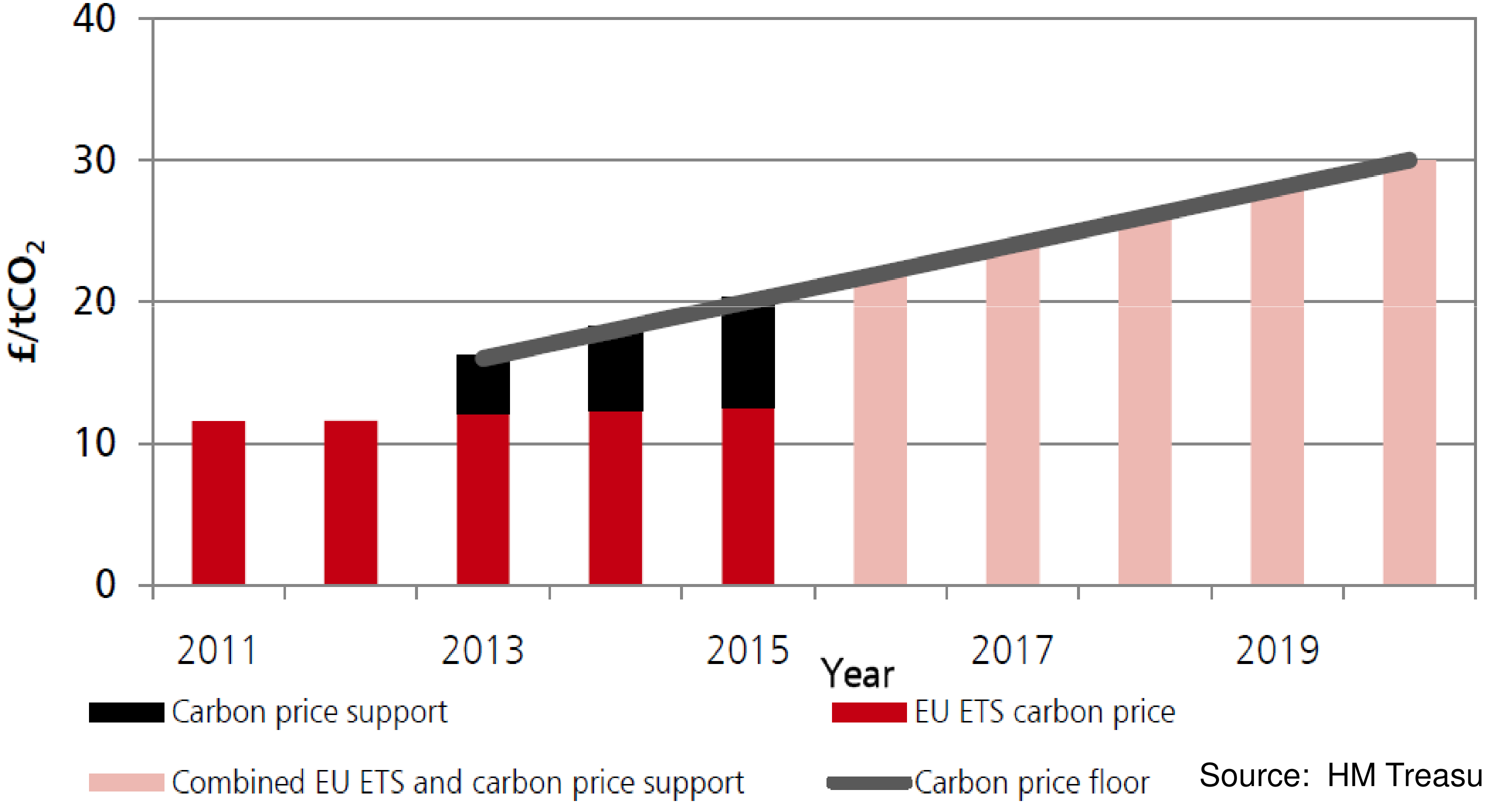
Carbon Price Floor

Emissions Performance Standard

Capacity Mechanism

Carbon Price Floor – bolsters / tops-up the price of carbon in the EU Emissions Trading System (EU ETS)

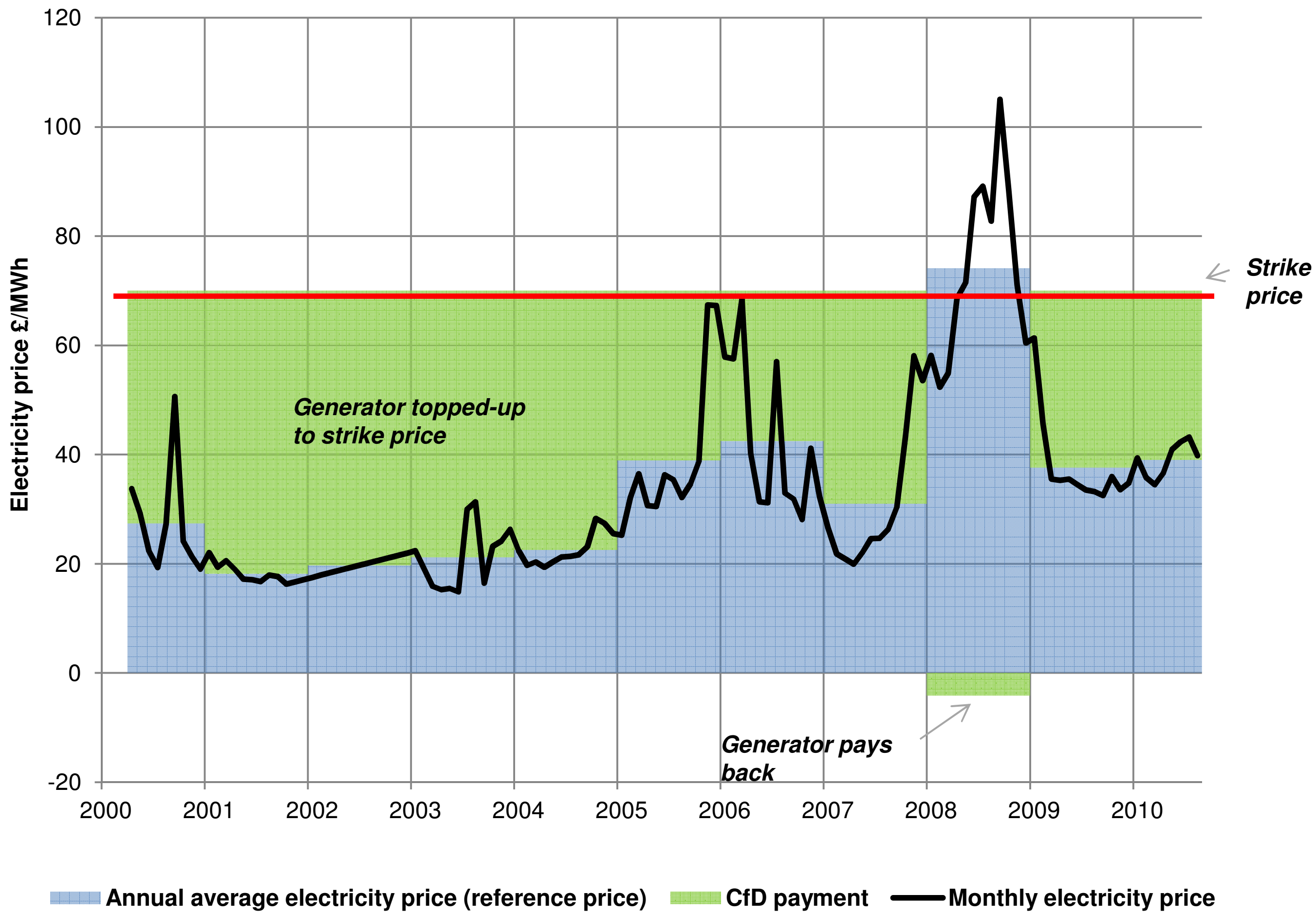
Carbon price floor illustration (in real 2009 prices and calendar years)



Source: HM Treasury 2011

The CPF reinforces the concept of "the polluter pays" and strengthens the carbon price signal to investors encouraging investment in low-carbon technology now

Feed-in Tariffs with Contracts for Difference (FiT CfD) – provides revenue stabilisation for all low-carbon generation



The generator sells power in the market but also receives a "top-up" payment to a pre-agreed "strike price". Generator pays back when prices are above the strike price. Revenue stability lowers the cost of capital - so lower cost to consumers.

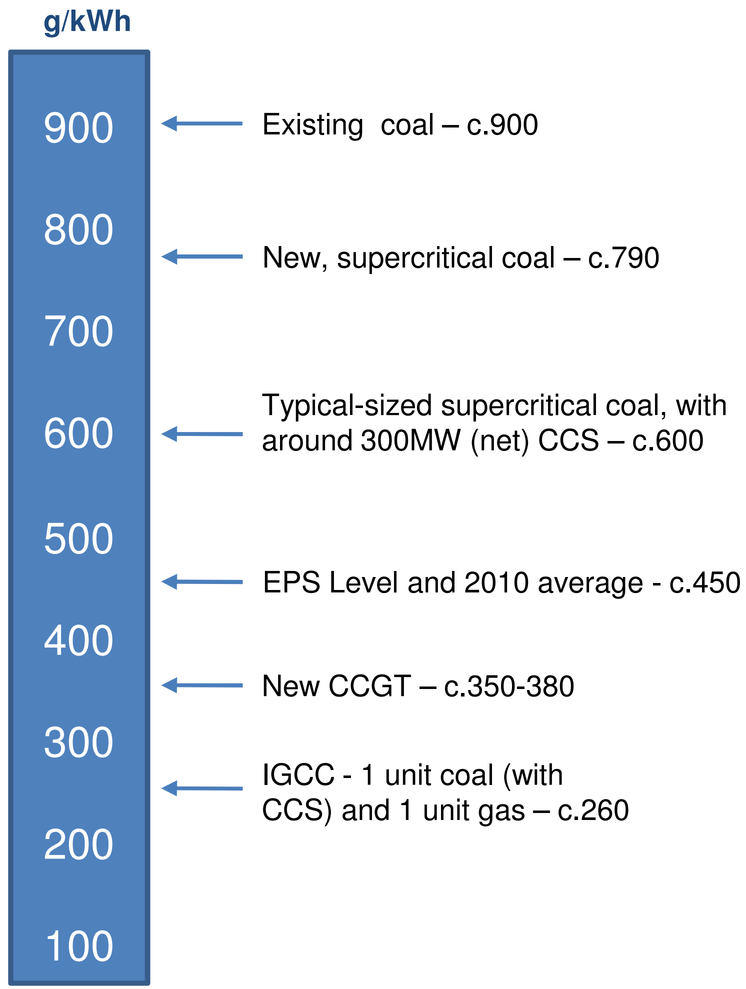
Emissions Performance Standard – provides a regulatory back-stop on the amount of emissions new fossil fuel power stations are allowed to emit

- EPS will be an annual limit on carbon emissions, initially equivalent to 450g CO_2/kWh (at baseload) for all new fossil fuel plants.

- EPS will be grandfathered, providing guarantees for plant on their EPS level for a clear and pre-determined period.

- EPS to be reviewed as part of the decarbonisation reporting process required under the Energy Act 2010 – in practice, first EPS review to report by end of 2015.

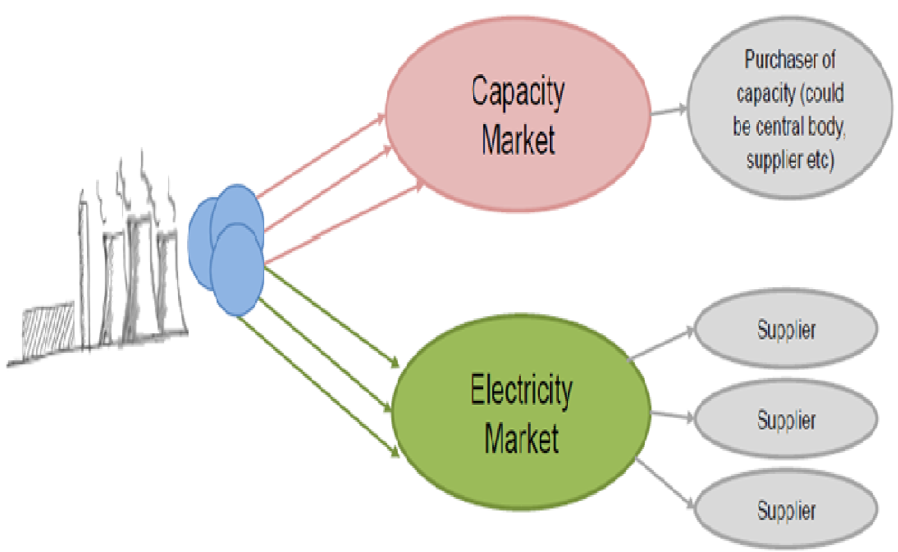
- Exemptions for plant forming part of the UK CCS Programme.



Capacity Market – will ensure we have sufficient, reliable capacity to meet demand at all times

- Central body forecasts peak demand
- Total amount of capacity purchased from providers (potentially including generation and non-generation approaches)
- Incentives/penalties in place to ensure capacity available when needed
- Range of design choices – e.g. level of capacity offered, how it is purchased, incentives/penalties structure
- E.g. US markets (PJM, ISO-NE), Colombia, Brazil

Capacity Market: Providers of reliable capacity participate in the Capacity Market and / or the electricity market. In the Capacity Market, they are incentivised to be available (or penalised for not being available).



Transition from Renewables Obligation (RO) to FiT CfD will be essential to maintain investment in renewables

- No retrospective changes – accredited schemes will stay in the RO

- RO will remain open to new accreditations until 31 March 2017

- One-off choice of mechanism between the introduction of the FiT CfD and the 31 March 2017 for new generation

- Limited grace periods around 31 March 2017 – delays in grid connection and need for radar facilities

The Institutional framework will balance an independent delivery body with clear Government accountability

Setting the policy approach and objectives

- **Government** has policy accountability

Translating the policy

- **Government** sets out key rules and parameters as part of the legislative framework and publishes the delivery plan
- **System Operator** advises Government on rules and parameters in the delivery plan

Administering the mechanisms

- **System Operator** administers contracts and auctions and reports annually to Government

Reconciling data and managing payments

- **Settlement agent** manages payments, through a payment model backed by a robust and stable legal framework

Monitoring compliance and enforcement

- **Ofgem** and **Government** monitor the System Operator’s delivery performance
- **Ofgem** and **System Operator** monitor suppliers’ and generators’ compliance

Our Technical Update in December set out the completed market reform framework

Government
Sets overall policy direction and sets out key parameters

System operator (National Grid)
Will advise government on contract parameters and administer the arrangements

Contracts to develop low carbon generation – contracts for difference

Market wide capacity contracts: open to all forms of generation

Investment in low-carbon generation also supported by Carbon Price Floor & Emissions Performance Standard

The next stage is the introduction of legislation leading to implementation in 2014

Consultation Document	**White Paper** • CfDs • CPF • EPS	**Technical Update** • Capacity Market • Institutional Framework	**Update on CfDs, EPS**	**Legislation introduced**	Royal Assent **2013**
					1st CfDs signed: **2014**
December 2010	**July 2011**	**Dec 2011**	**Spring 2012**	**May 2012 (subject to Parliament)**	End of transition **2017**