

Electricity Market Reform

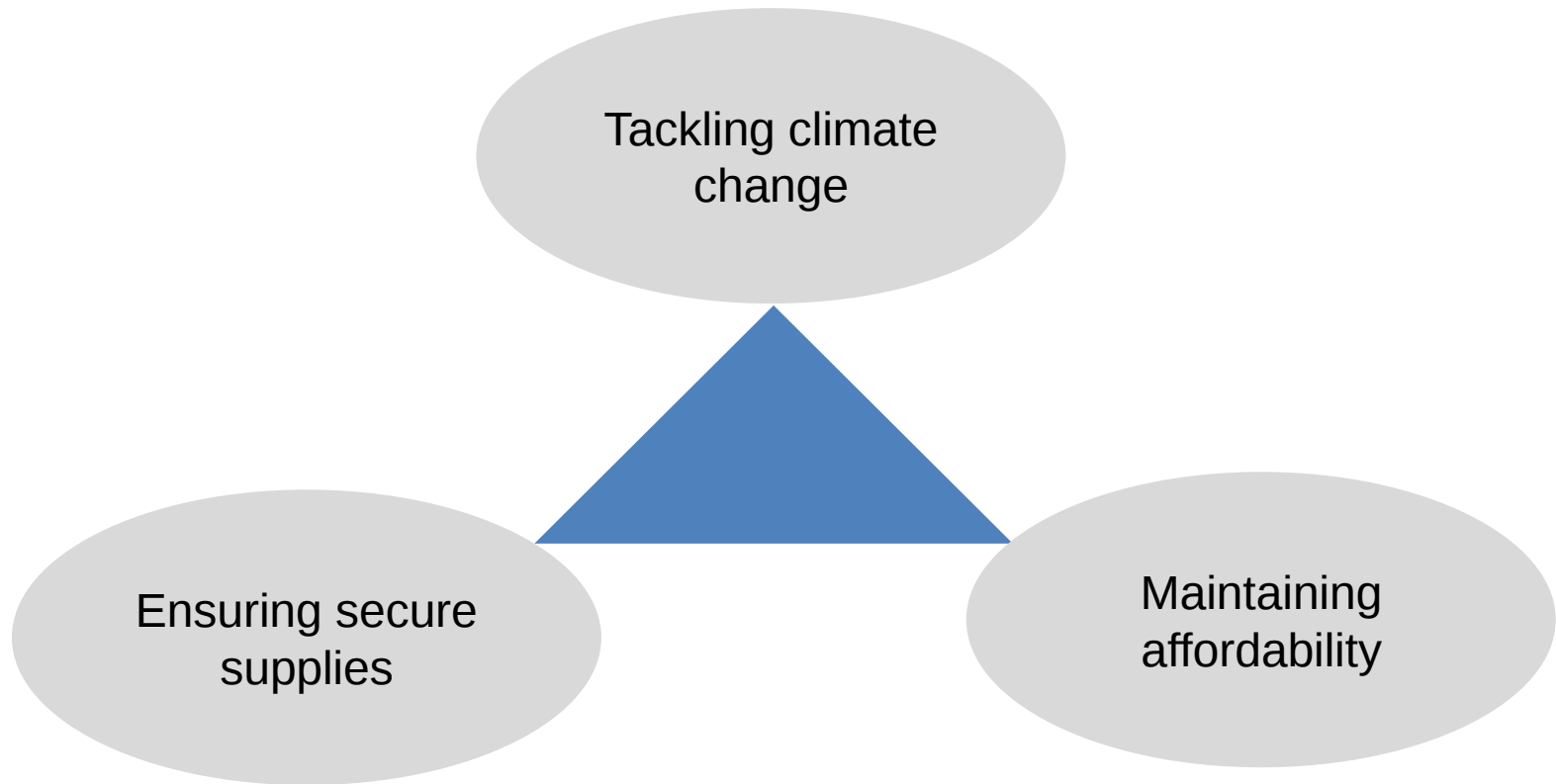
Winter Outlook Seminar

27 September 2011

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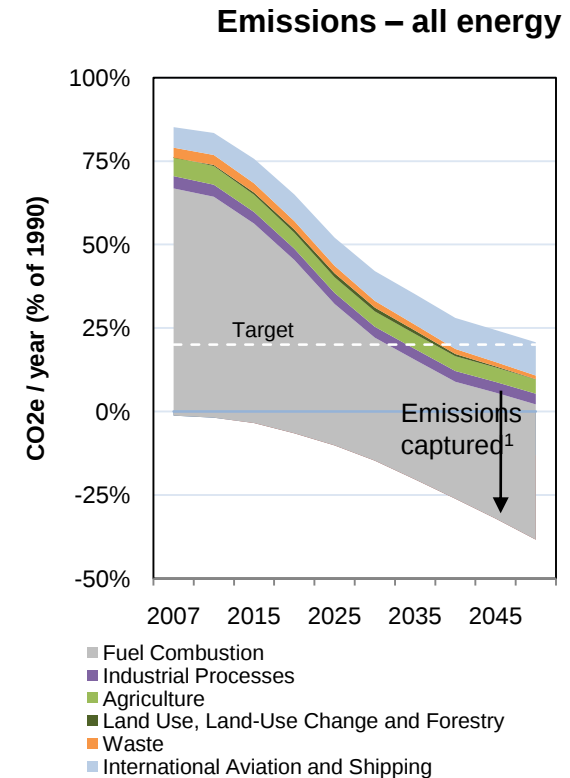
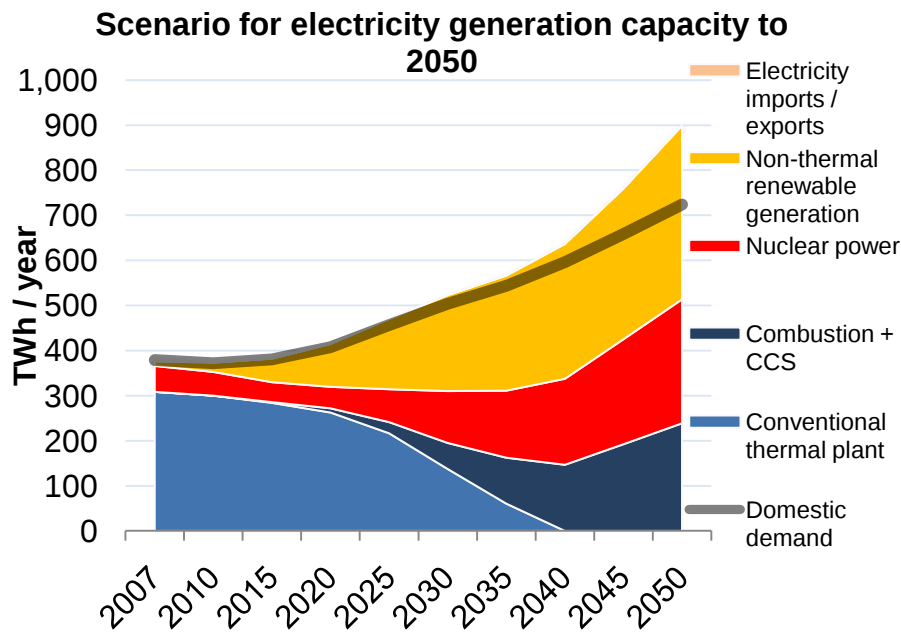
Our objectives - to achieve secure, low carbon, affordable electricity



Climate change goals: 80% emissions reduction (from 1990) by 2050 and 5 year carbon budgets, 15% renewable energy by 2020

Climate change: we need to drive a transition to new, low carbon, generation

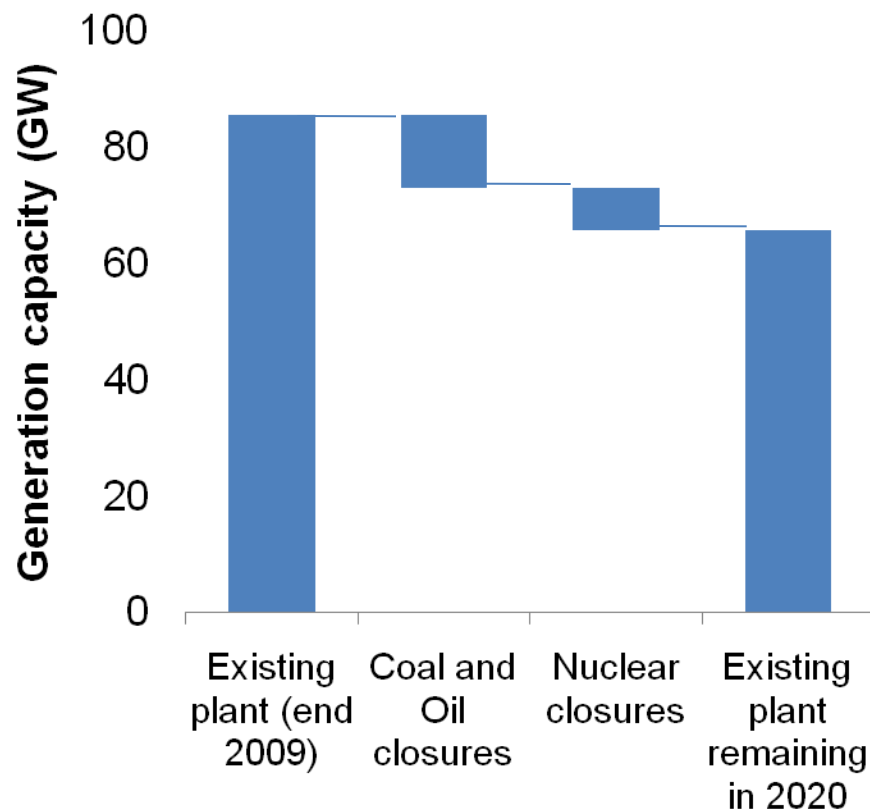
EXAMPLE PATHWAY – THERE ARE MANY OTHER POSSIBILITIES



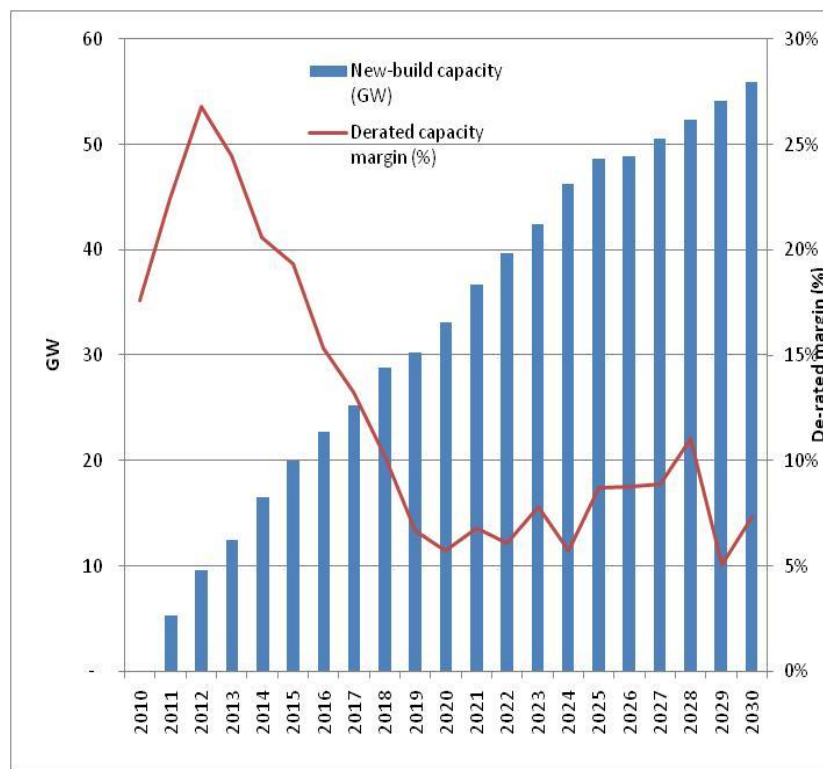
Electricity demand could double by 2050 and power may need to decarbonise quickly by 2030s

Security of supply: we need to replace around a quarter of our plant by 2020

Around a quarter of our plant will close by 2020



Although we expect new plant to be built margins may be tight in the 2020s



Redpoint analysis

Notes and sources: Existing capacity from DUKES 5.7, as at end 2009; excludes interconnectors. Closures refer to those due to LCPD opt-out and known nuclear end-of-life dates; capacities taken from National Grid SYS 2010.

The current market arrangements will not deliver...

Weak carbon signals

“Bias to gas”

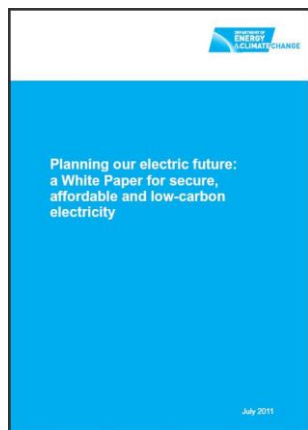
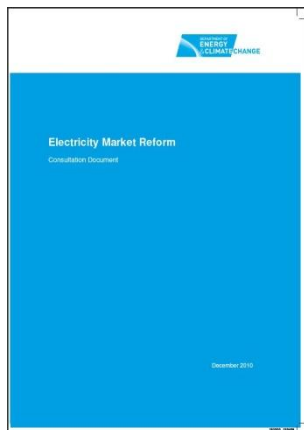
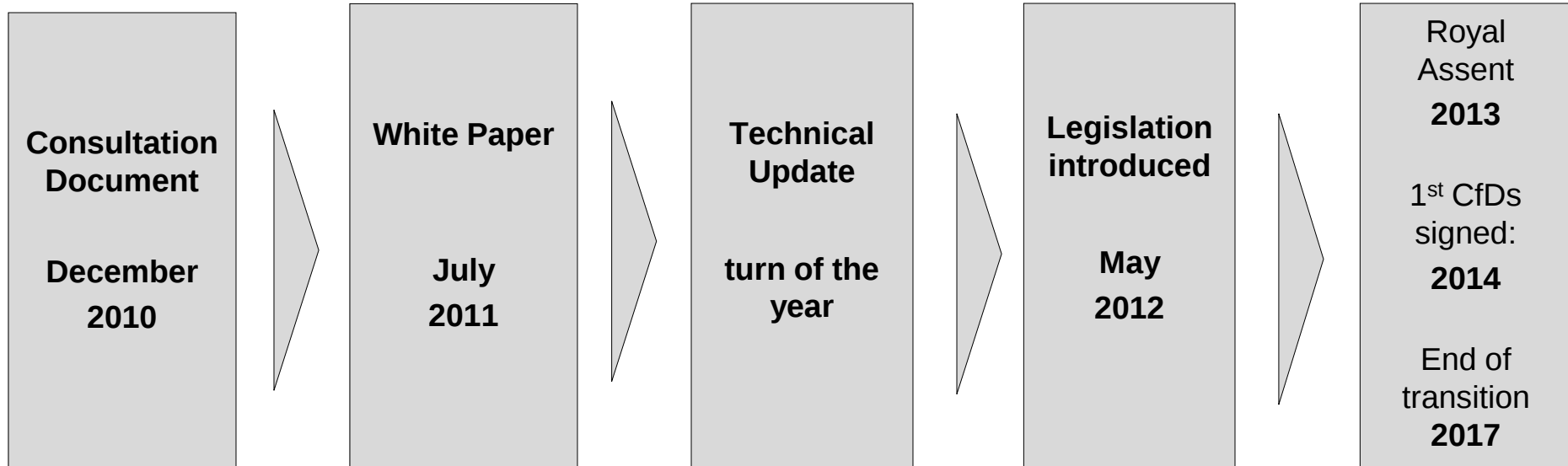
Security of supply

Scale of finance needed

If we do nothing:

- **Less security of supply**
 - Margins could hit 5% in lowest year and we may not be able to offset new intermittent generation
- **Will not meet the scale of decarbonisation needed – we still have 200g CO₂/kWh in 2030**
- **Consumers pay more for electricity than they need to**

The EMR White Paper is one more step in the process



There are four policy elements to our package of electricity market reforms

Contracts for Difference

**Carbon Price
Support**

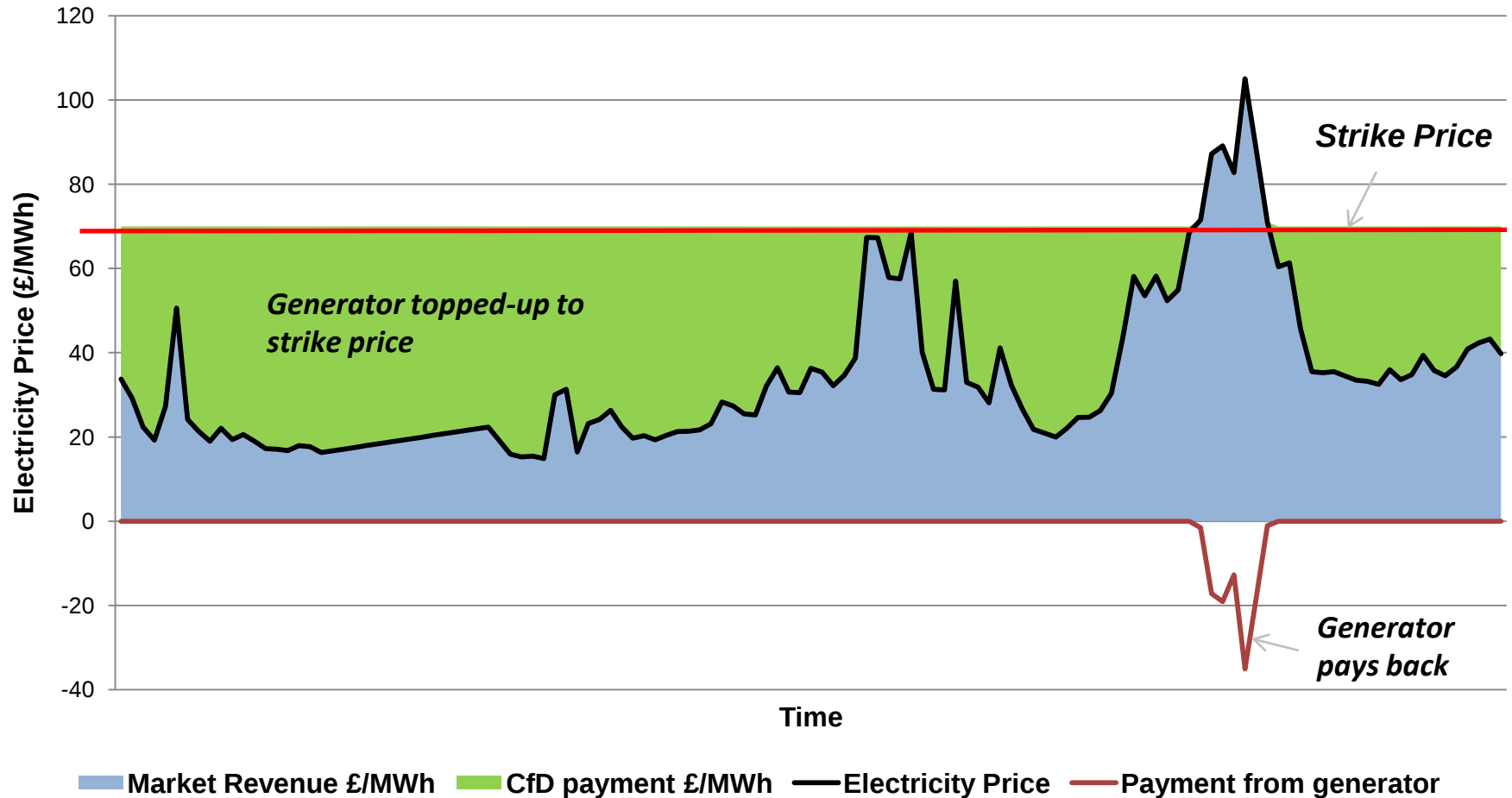


**Emissions
Performance
Standard**

Capacity Mechanism

CONTRACTS FOR DIFFERENCE

A Contract for Difference is a top-up or claw-back to reach a guaranteed price



Generators receive payment from two sources: the electricity price and a top-up payment to a pre-agreed level

Contracts for Difference were chosen in the Whitepaper, along with key design choices

1. Rationale for adoption

White Paper sets out a firm decision to implement CfDs:

- More cost effective:
 - Lower cost of capital
 - More control over potential for excessive rents
- Practicable for all types of low carbon generation
- Public finance impact can be managed

2. Key design choices

White Paper sets out the structure we are minded to adopt:

- Price discovery: initially administrative, leading to technology specific by the 2020s, and then technology neutral auctions.
- Reference Price: appropriate for different technology characteristics (Intermittent = short term; Firm generation = longer term markets)
- Pay on output (energy) with an open question on baseload to pay on output or firm volume. Retain some flexibility to integrate Capacity Mechanism design with CfD.
- Other characteristics more open (e.g. contract length, reference price source, non-build penalties, etc.)

CAPACITY MECHANISM

A Capacity Mechanism will help to ensure our security of supply

Is a capacity mechanism needed?

- Capacity Mechanism needed to ensure security of supply around end of this decade
- Role of Capacity Mechanism is to ensure overall resource adequacy

White Paper position

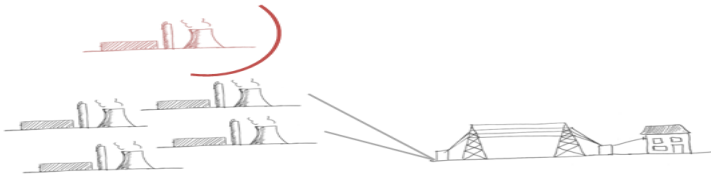
- Supportive of Ofgem-led market reforms – liquidity and cash out
- Open on type of mechanism to be introduced – consulting on options (consultation closes 4 October):
 - Targeted mechanism – Strategic Reserve
 - Market-wide mechanism – options for Capacity Market, with detail on Reliability Market
- Aim to take decision around turn of the year

Options for Capacity Mechanism

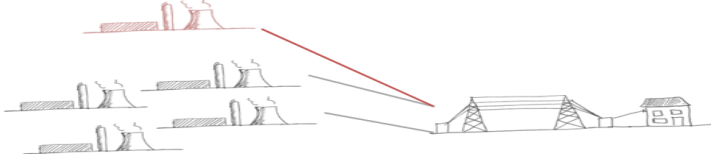
Targeted (strategic reserve)

- Estimate made of likely shortfall of capacity in future market
- Additional capacity (potentially including generation and non-generation approaches) procured and held outside market
- Strategic Reserve only deployed when price reaches pre-determined threshold
- Deployment rules subject to defined change process

1. Central body procures reserve capacity but withholds it from the market ...



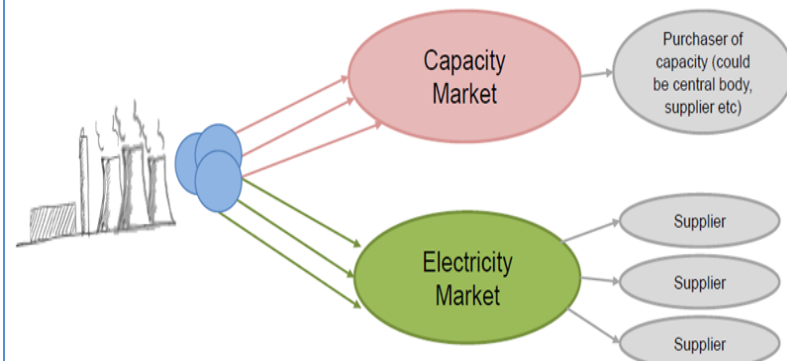
2. ... unless "exceptional circumstances" prevail



Market wide (Capacity Market)

- 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 – e.g. reliability contracts
- Range of design choices – e.g. level of capacity offered, how it is purchased, incentives/penalties structure

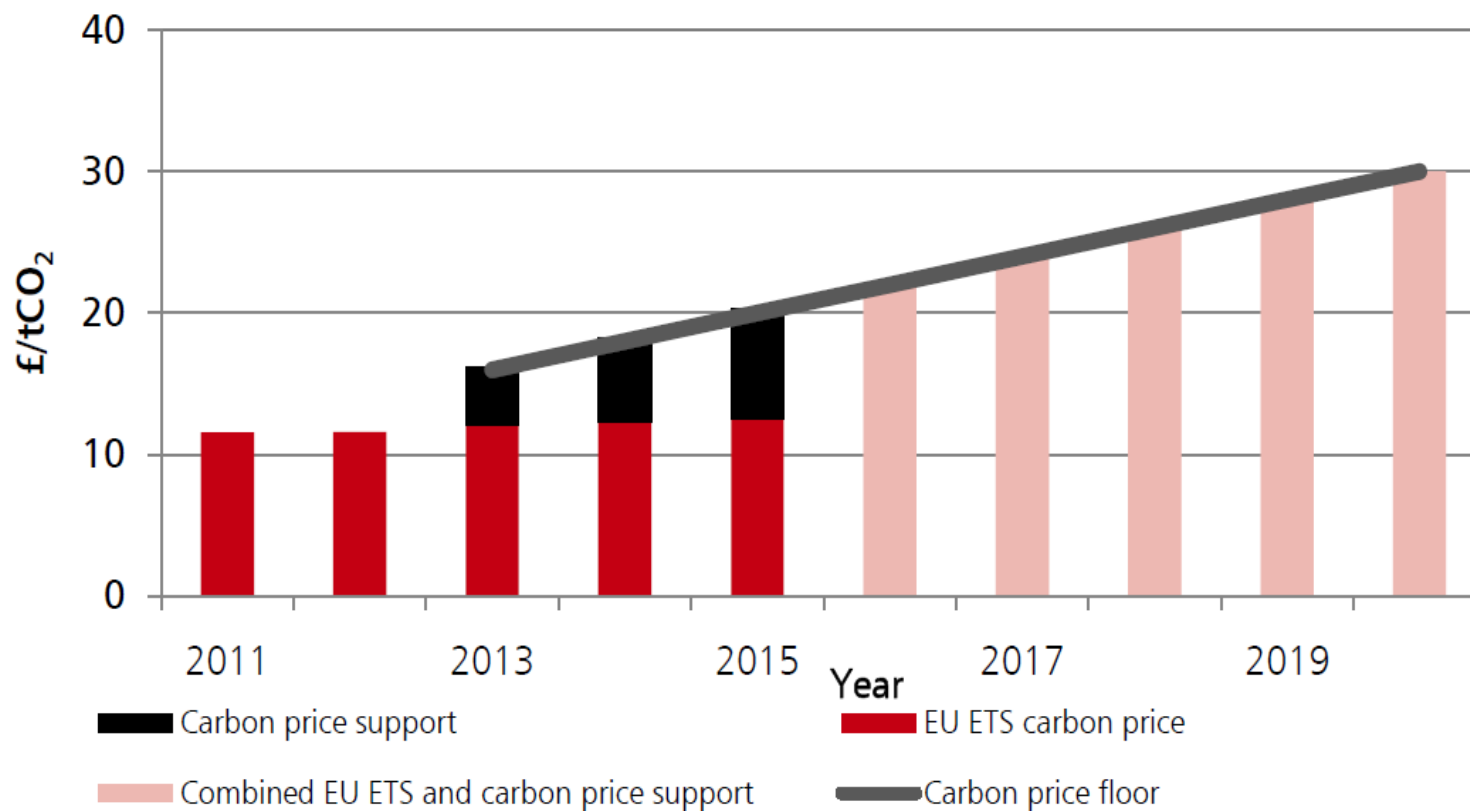
Capacity Market: Providers of reliable capacity participate in the Capacity Market and / or the electricity market. In the Capacity Market, they are incentivised to be available (or penalised for not being available).



CARBON PRICE FLOOR

Carbon Price Floor

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

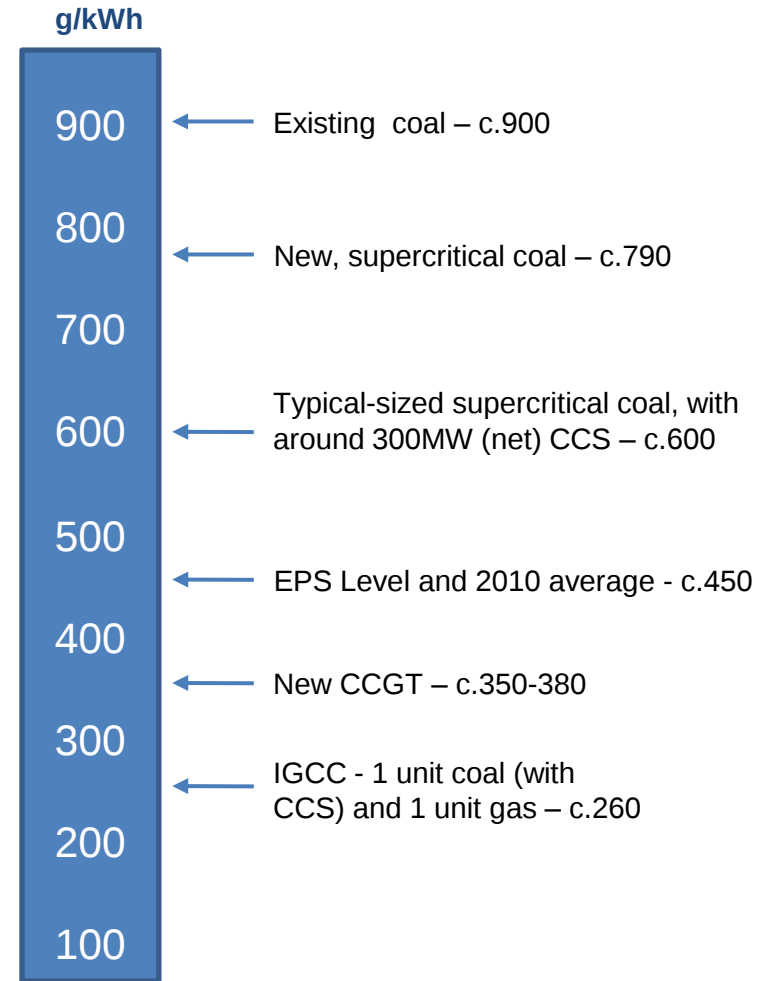


Source HM Treasury 2011

EMISSIONS PERFORMANCE STANDARD

EMISSIONS PERFORMANCE STANDARD

- EPS will be an annual limit on carbon emissions, initially equivalent to 450g CO₂/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.



SUMMARY AND NEXT STEPS

Delivery institution arrangements will be confirmed in the winter technical update

Consultation responses – delivery institution(s) must be:

accountable, independent, credit-worthy, have technical and commercial expertise, financial systems to manage complex payments

What institution should deliver the EMR policies

1

- a) New public body
- b) Existing public body
- c) Existing private body

The White Paper sets out:

2

- a) The high level model, functions, key roles and responsibilities, criteria, but no decision on which institution
- b) More detail in technical update around the turn of the year

Planning cycle:

3

- a) Routine periodic evaluation of future strategy in the light of costs, developments and challenges.
- b) First evaluation in 2016 will consider whether new contract structure for low carbon is delivering the expected benefits.
- c) Any future adjustments carry a continued commitment to grandfathering and no retrospective changes.

We need a smooth transition

Manage the transition from RO to CfDs in a way that maintains investor confidence

1

- a) A detailed Annex on RO transition is included in the White Paper
- b) Offer choice of RO or CfD from 2014-17- principle of grandfathering

Bridging arrangements for projects seeking CfD support before legislation is in place

2

- a) May include early nuclear, CCS demos, R3 Offshore wind
- b) Could be through letter of assurance and a (published) banding review or costing exercise

Price and Bill Impacts will be minimised

- FIT CfD allows swift transition of the power sector – modeling shows a drop to 100g CO₂/kWh by 2030 and could go further.
- Capacity mechanism provides sufficient generation – to ensure supply meets demand at all times.

Impact on bills

- If we continued with current policies, average household electricity bills could rise by around £200 between now and 2030.
- With EMR, this increase in bills over the period could be limited to around £160

Next steps

- Technical Update (turn of the year)
 - Capacity mechanism
 - Institutions
- Further work on key issues
 - CFD design
 - Transitional arrangements
 - Wholesale Market Liquidity, with Ofgem
- Legislation (May 2012)