

Energy market developments in the UK

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Energy and Climate Exchange 2012:

Member States energy market developments

BRUEGEL Brussels 19th March 2012

<http://www.eprg.group.cam.ac.uk>



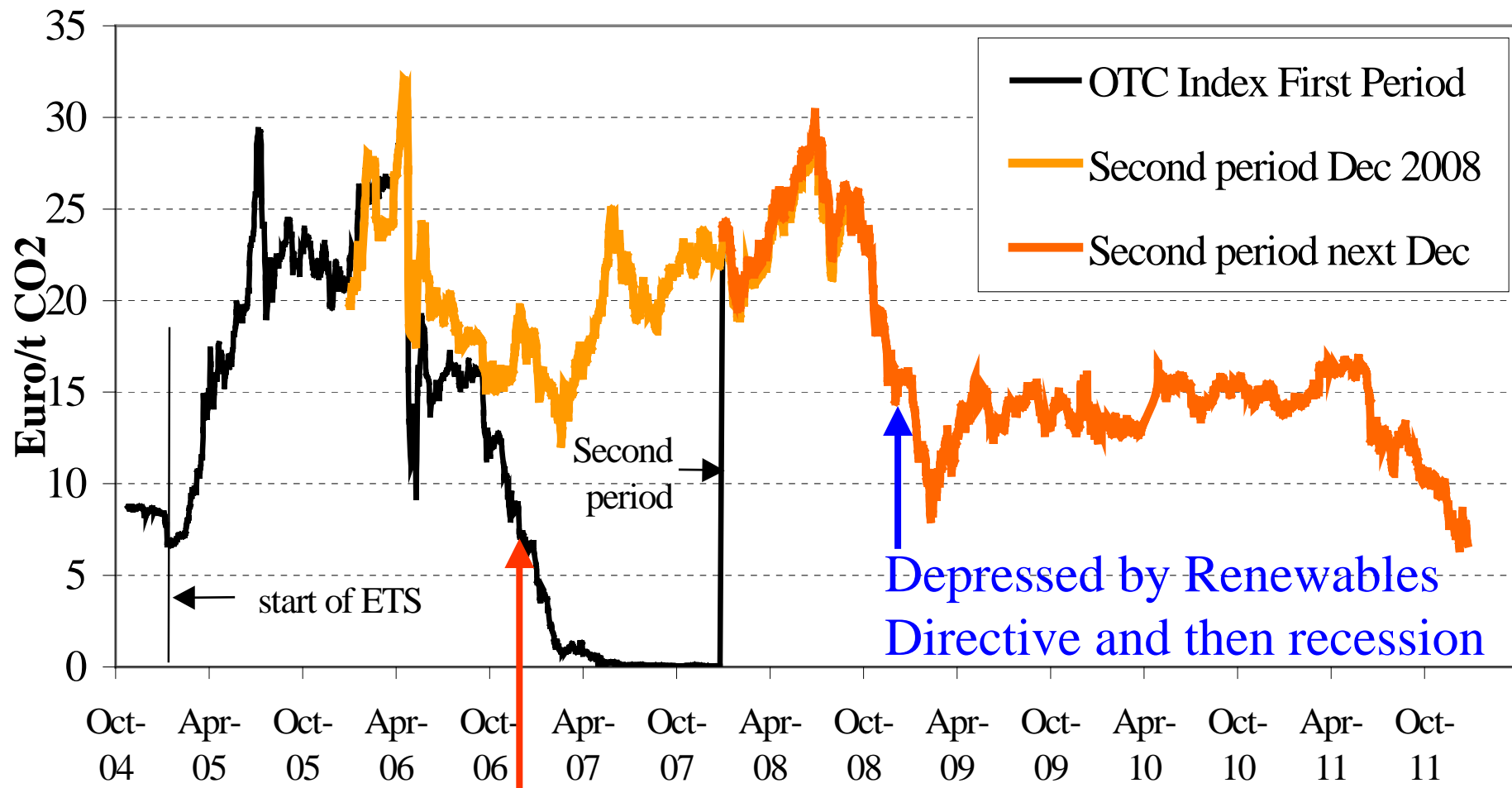
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- Failures of EU climate change policy
- Key elements of *Electricity Market Reform*
 - to deliver **low-C in UK** at reasonable cost
 - => de-risk investment
 - => Contracts to lower cost of capital
 - => carbon price support
- Misconceptions about EMR
- Problems with EMR

Carbon prices have crashed

EUA price October 2004-December 2011



Crashed as no banking

Source: EEX

Failures of EU ETS

- Current ETS sets quota of total EU emissions
 - leads to price instability and lacks credibility
- Renewables Directive increases RES
 - => increased RES does not reduce CO₂
 - => reduces price of EUA
 - => prejudices other low-C generation like nuclear
- Risks undermining support for RES
 - Solved by fixing EUA price instead of quota*

Failure of UK Energy Policy

- Political conflicts over coal and nuclear delays investment
 - wasted decade => ageing generation fleet
- Poor Renewables support raises costs, delays progress
- UK approach is to add ever more new policies
 - never admit past mistakes even if costly
- Worry is now about panic over shortages
 - throw consumers' money at the problem

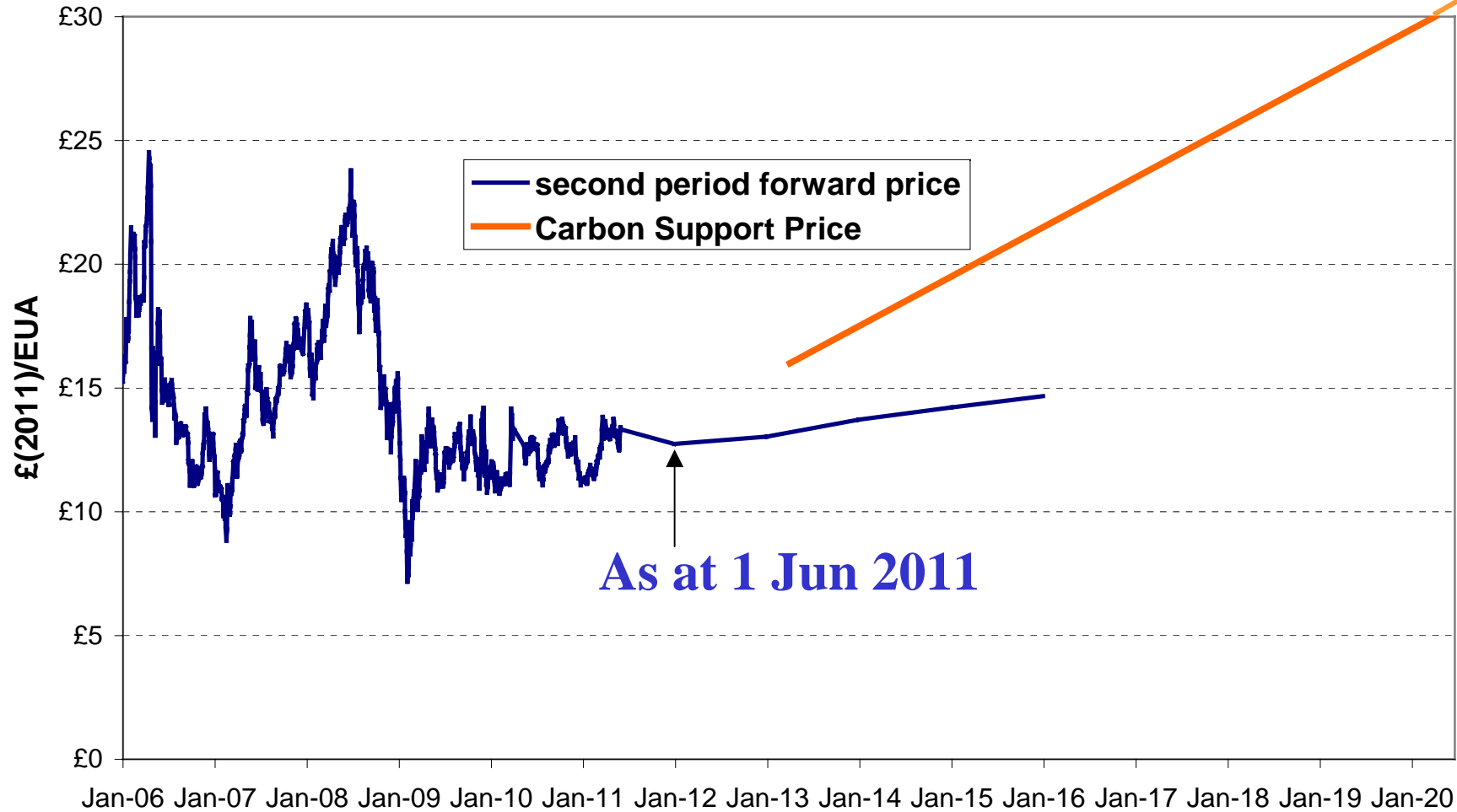
- To de-risk and incentivise low-C investment
 - ⇒ **C-price floor** to underwrite wholesale price
 - ensures nuclear is not “subsidized”
 - ⇒ **Long-term contracts** for **credibility**
 - ⇒ **Capacity payments** - targeted or general?
 - ⇒ **EPS** 450gm CO₂/kWh to deter unabated coal
- “technical update” Jan 2012 addresses
 - capacity mechanism: to be **general** not targeted
 - contracting institution should be System Operator

Aim at law on statute book by spring 2013

UK's Carbon Price Floor - in Budget of 3/11

EUA price second period and CPS £(2009)/tonne

to £70/t by 2030



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Source: EEX and DECC Consultation

- CPF distorts trade if in UK only
=> obvious problem in Ireland SEM
- Ideally – transform ETS to uniform carbon tax
 - Green taxes better than taxes on employment
- Plan B: MS adopt CPF and keep C tax revenues
 - Generates revenue - useful in current fiscal bind
 - if tax is a dirty word, full auctioning plus control of supply to auction to produce the right carbon price

Member States should adopt the CPF!

Long-term contracts

- CO₂ price unpredictable, CPF not credible
 - Electricity prices risky to non-fossil gen
- ⇒ long-term contract enforceable in courts
- but technologies differ and so should contracts
 - ⇒ simple FIT for on-shore wind
 - ⇒ auctions for renewables?
 - ⇒ CfD for nuclear and CCS?

Need a contract body = System Operator (SO)

Need to adapt contract to technology

Capacity mechanisms

- Concern over backup needed for massive wind
 - could have 7+ days of low wind at winter peak
 - demand side unlikely to help much here
- such events are hard to predict
 - so without a contract no-one would build just for that
- Do we need it now? Wait and design carefully?
- Is the US approach to a demand curve good?

***Preferred model - system wide; SO to manage
now consulting on details***

Criticisms of EMR

- “Contracts mark return to Single Buyer Model”
 - but all IPPs in 1990s had long-term PPAs
- “Bureaucrats, not markets choose investment”
 - but current RES support Govt designed after intense lobbying by incumbents
 - => tenders, auctions to create competition
 - => contracts should incentivise efficient operation
- “Wholesale price will be distorted by contracts”
 - fossil at margin until 2020+, problem is wind and low variable cost plant => capacity payments?
 - Problem from RES, not contracts

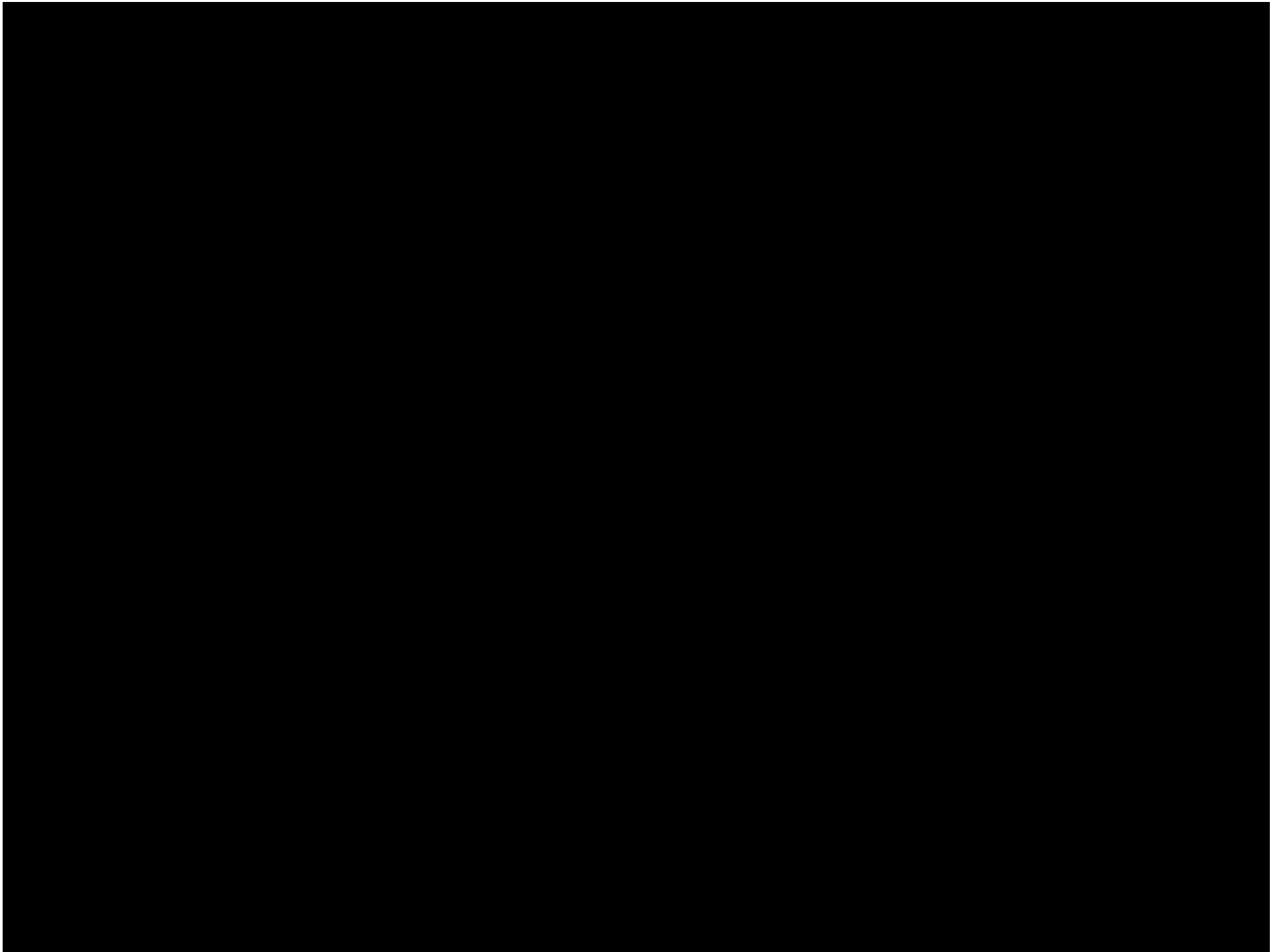
Flaws in electricity market

- Bilateral, thin illiquid markets that stimulated extensive vertical integration
- Balancing mechanism poorly designed
- current design rules out pool & VOLL LOLP
 - the old pool model now looks good
- SO could run a voluntary pool for new entrants and renewables?
- Need confidence in liquid spot price(s) on which to write and trade contracts

Conclusions on EMR

- Central element is contracting
 - need careful design and a commissioning body
 - wind needs location specific FIT
- CPF underwrites CfD but distorts trade
 - need to argue for EU C-tax or equivalent
- Capacity mechanism
 - needed for peak and wind back-up
 - will depend on form of wholesale market

But EMR does not reform Market!



Spare slides and acronyms

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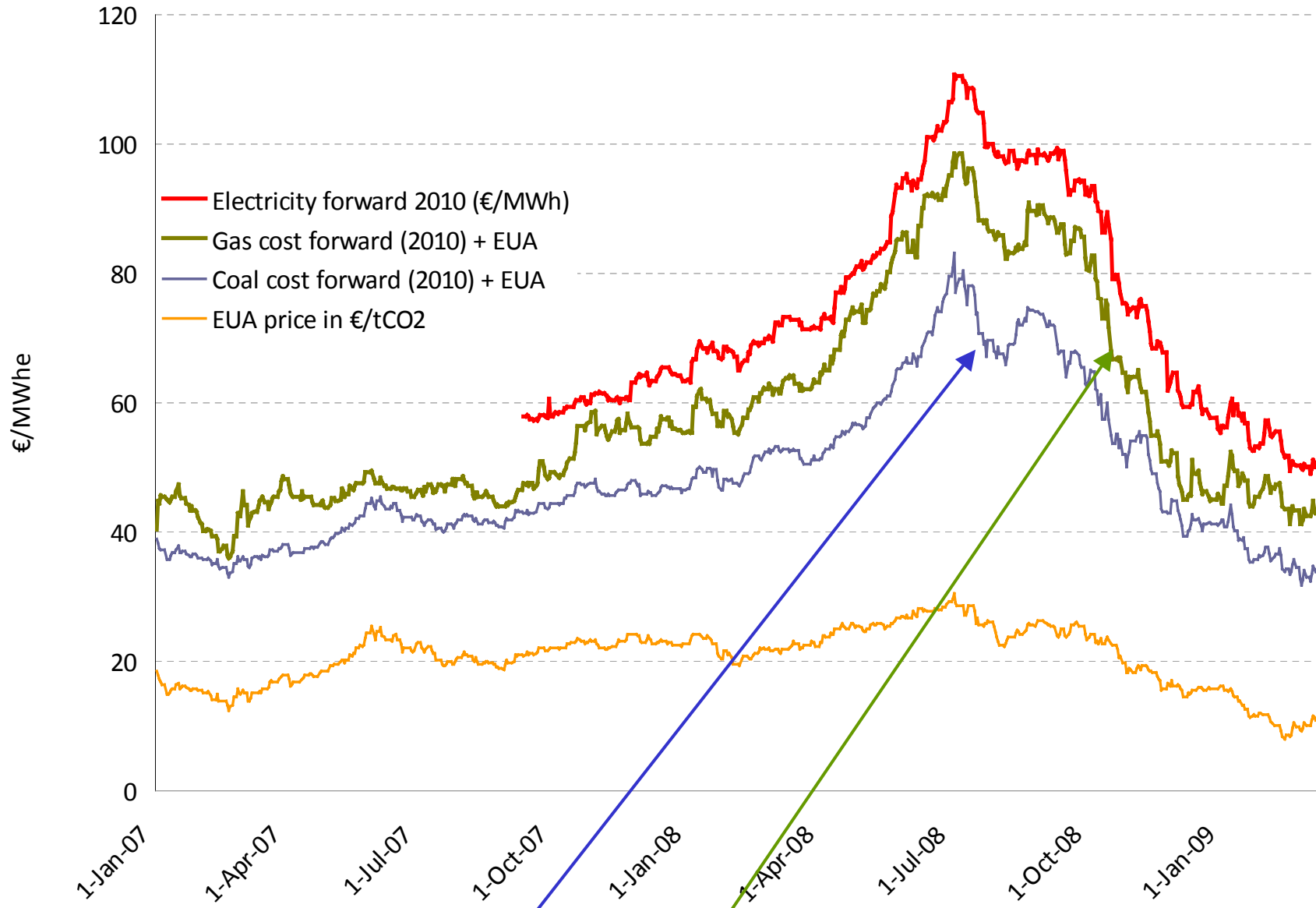
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Acronyms

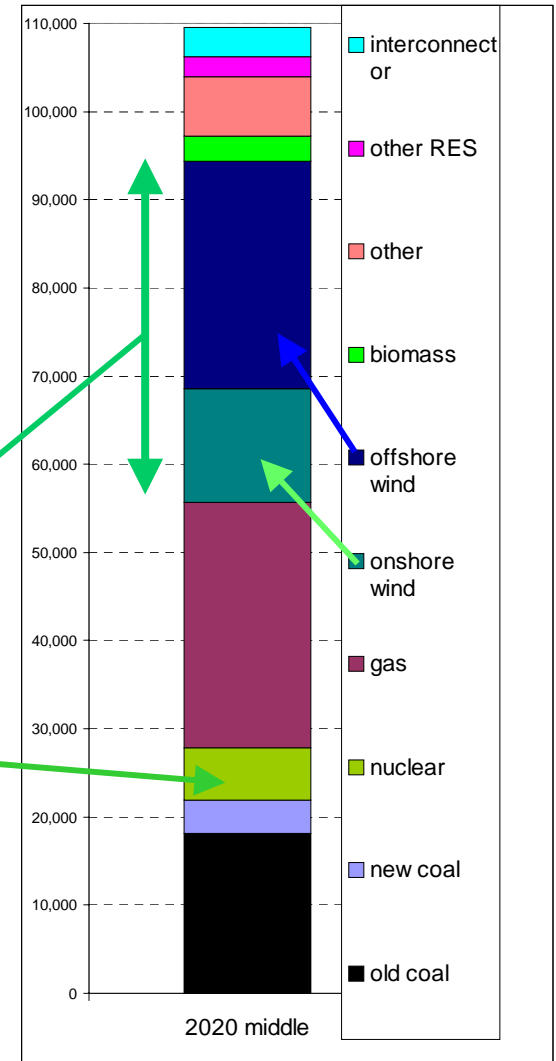
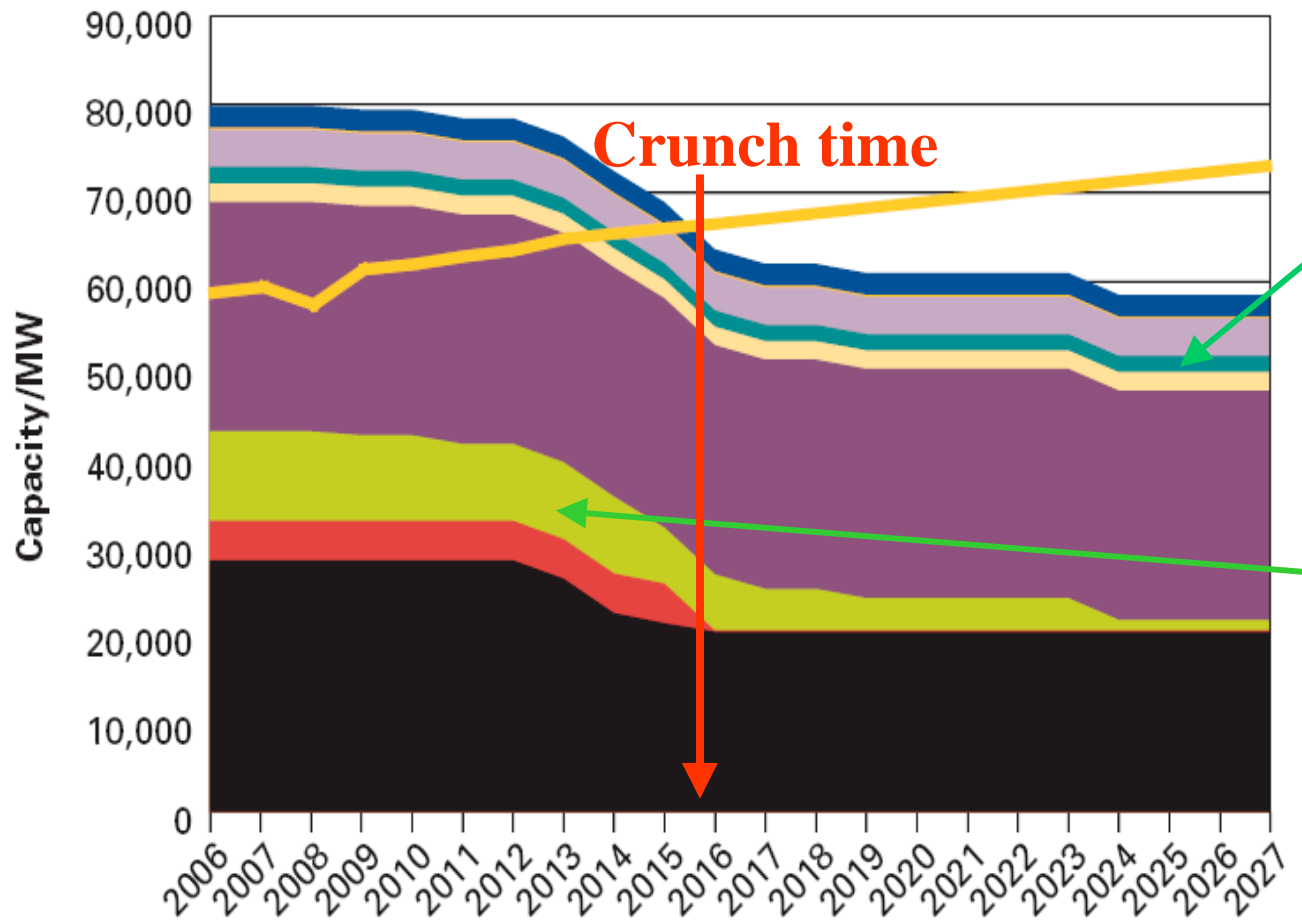
CfD	contract for difference
CCC	Committee on climate Change
CCS	carbon capture and storage
EMR	Electricity Market Reform
EPS	emissions performance standard
ETS	Emissions Trading System
EUA	EU Allowance for 1 tonne CO ₂
FIT	Feed-in tariff: fixes price for power
IPP	Independent Power Producer
LOLP	Loss of Load Probability
MS	Member State(s)
PPA	Power Purchase Agreement
RES	Renewable electricity or energy supply
SEM	Single Electricity Market for Ireland (north and Republic)
SO	System Operator
VOLL	Value of Lost Load (now £9,999/MWh)

UK price movements: 2007 to 2009 in €



Correlation of coal+EUA on gas+EUA slightly higher at 96%
Source: Bloomberg

Development of GB generating capacity

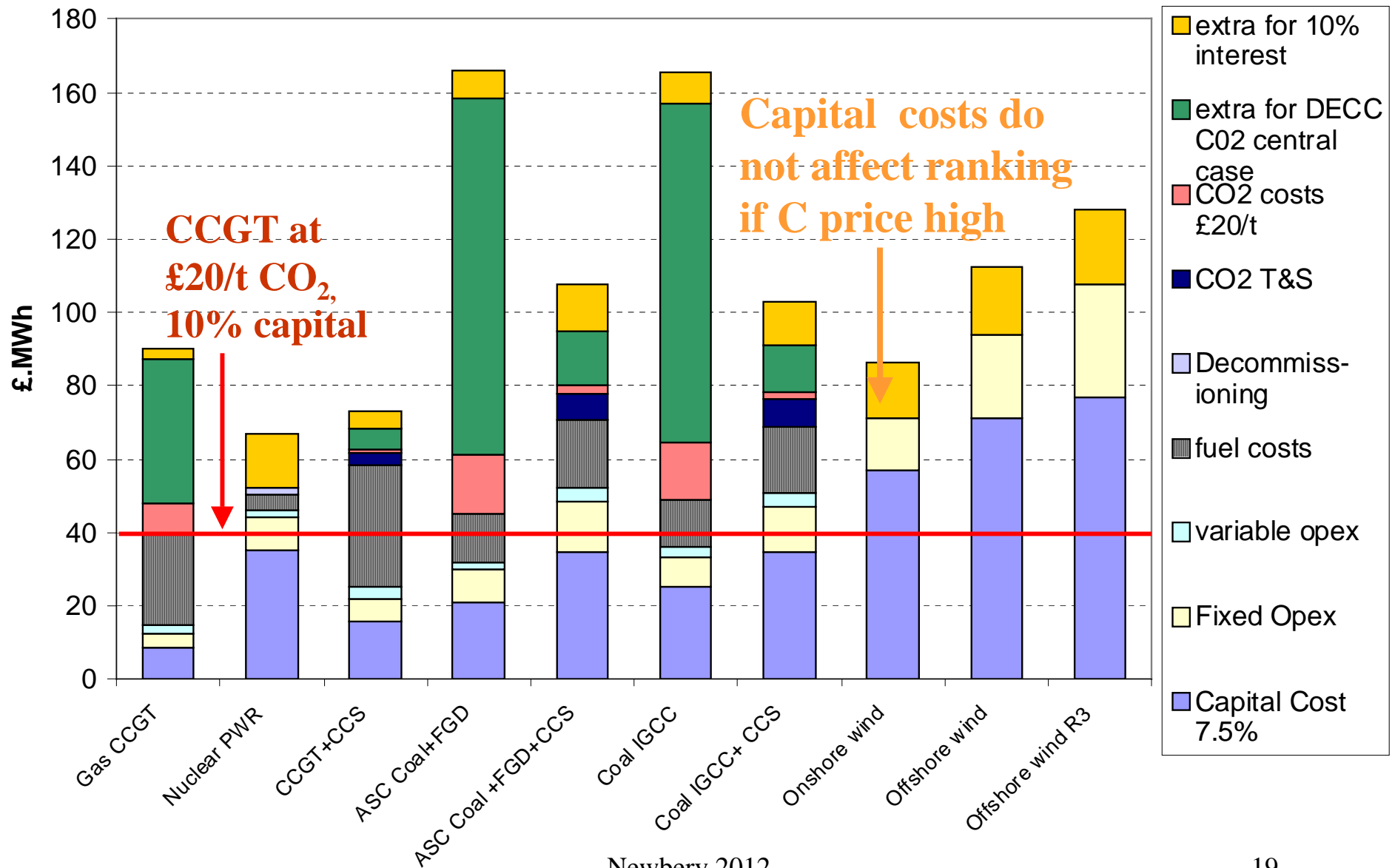


- Interconnector
- Other
- Hydro and pumped storage
- Wind
- Gas turbines and oil engines
- CCGT & CHP
- Nuclear
- Oil
- Coal
- Demand

**SKM (2008)
mid-scenario
2020 projection**

Source: Digest of UK Energy Statistics/DECC

Projected levelised generation costs 2017 NOAK



Source: DECC Consultation on EMR

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