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Electricity Market Reform in the UK

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The Background

- UK decarbonisation strategy
  - “electricity first, then electrify heat and transport”
- EU renewables policy
  - 15% of primary energy for the UK implies c.⅓ of electricity
- UK renewables policy
  - Renewables Obligation Certificates fixed total support
    - Market price above expectations creates rents
  - Planning delays reduced volume of plant
    - Cost per MWh of energy therefore raised
  - Feed-in-tariff introduced for small generators

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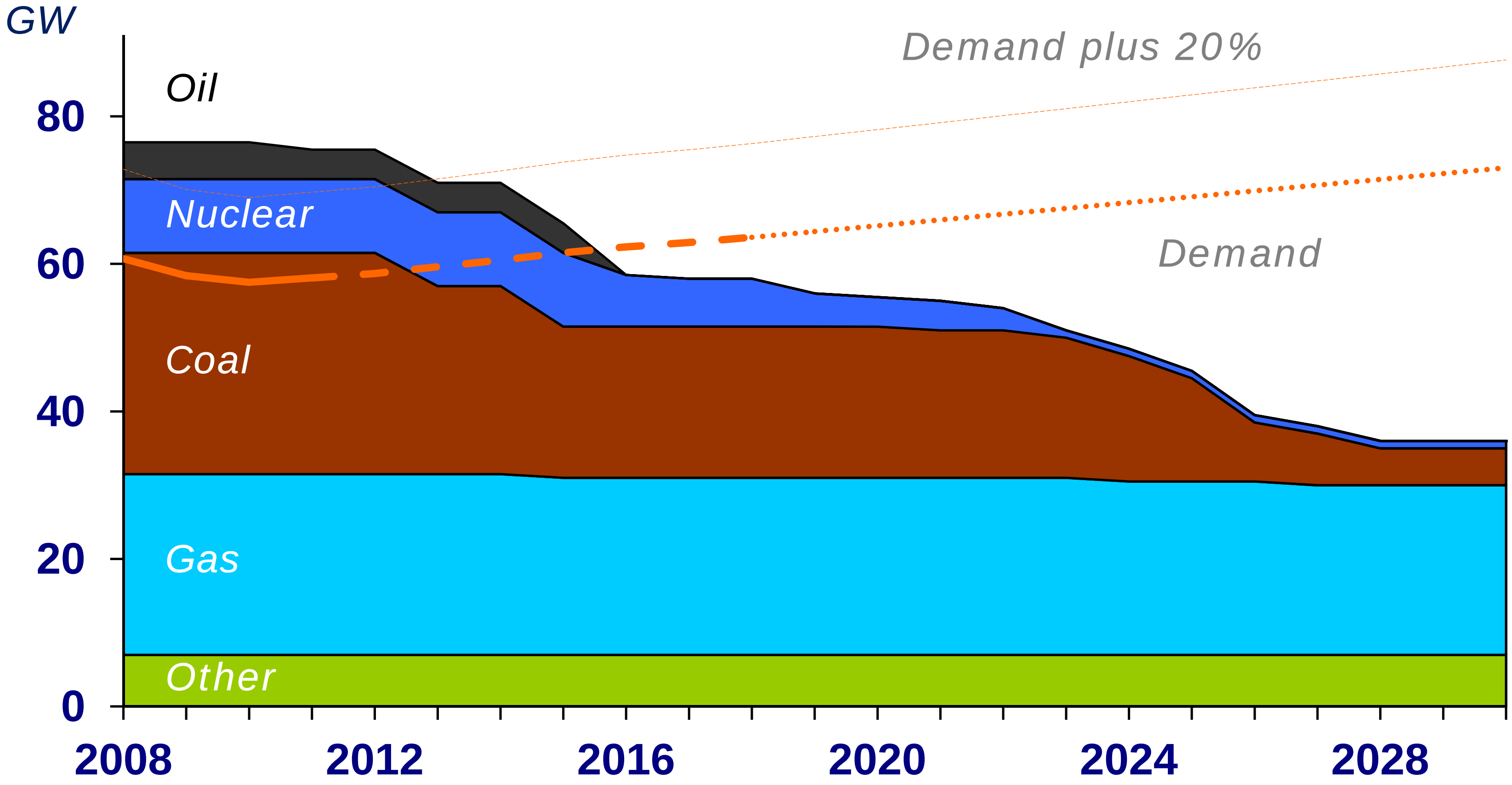
Plant closures



Source: E.ON UK & National Grid

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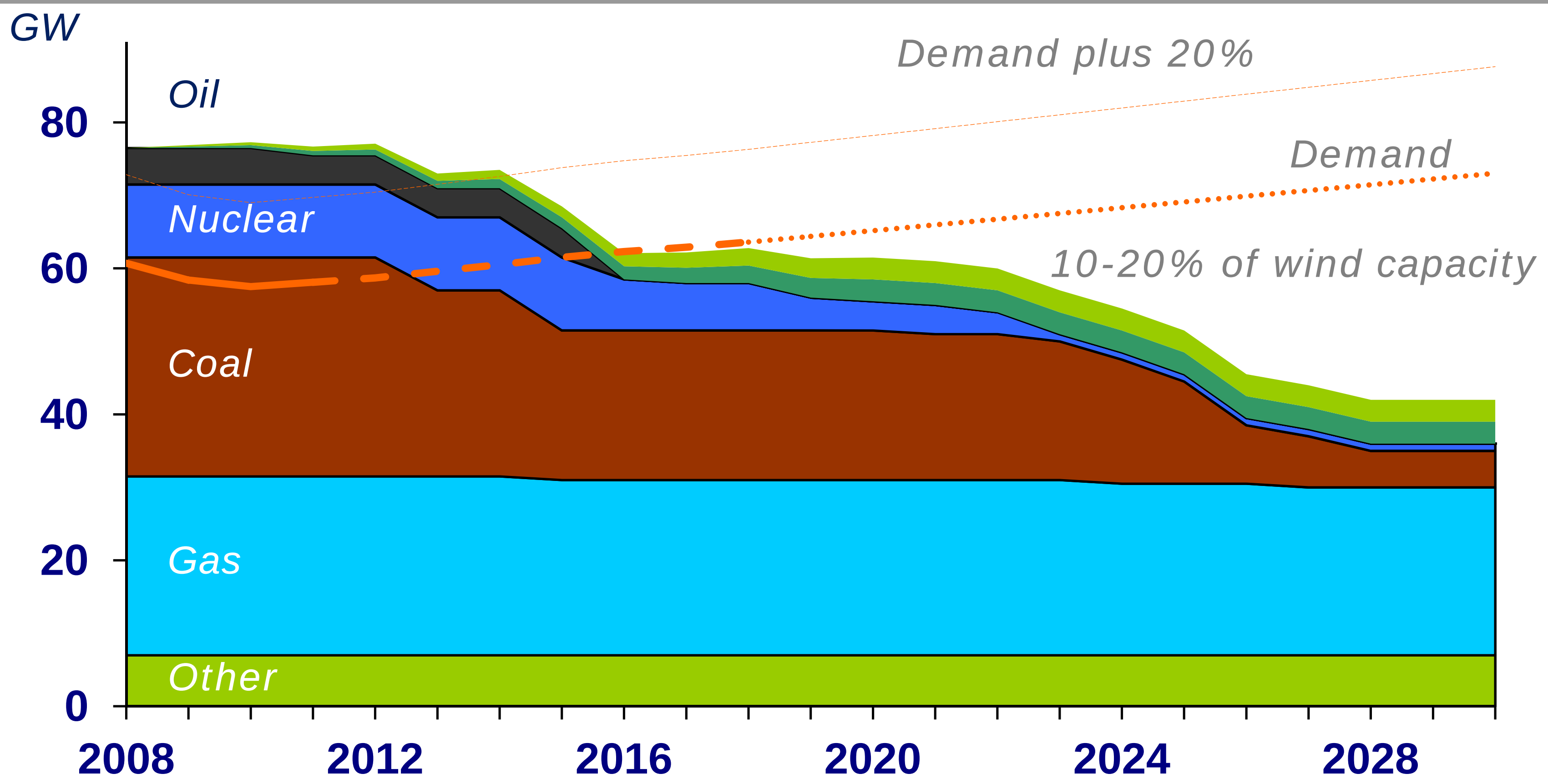
Plant closures plus wind power growth



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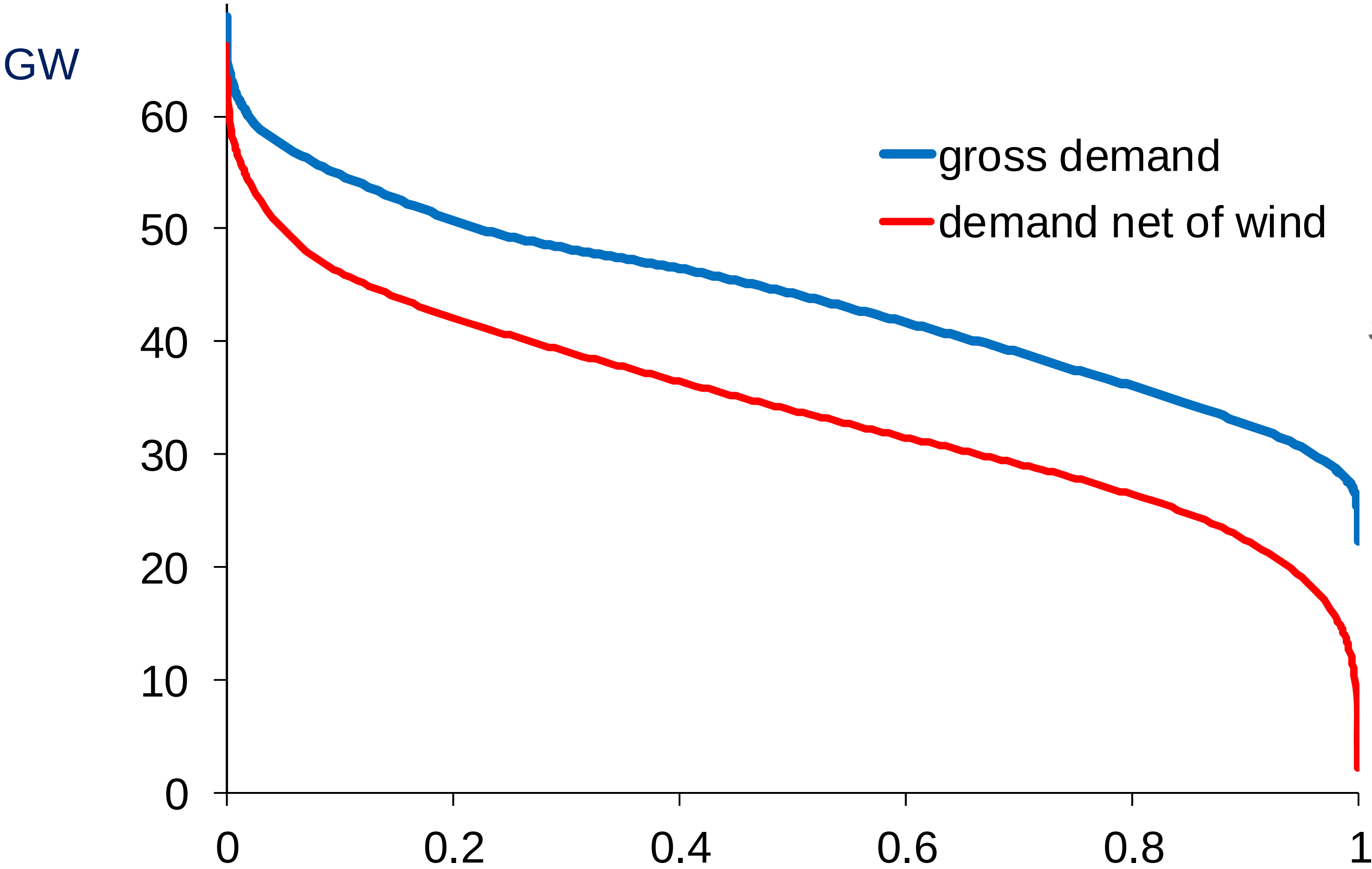
Load-duration curves: (GB prediction for 2020)



Source: Green, Utilities Policy, 2010

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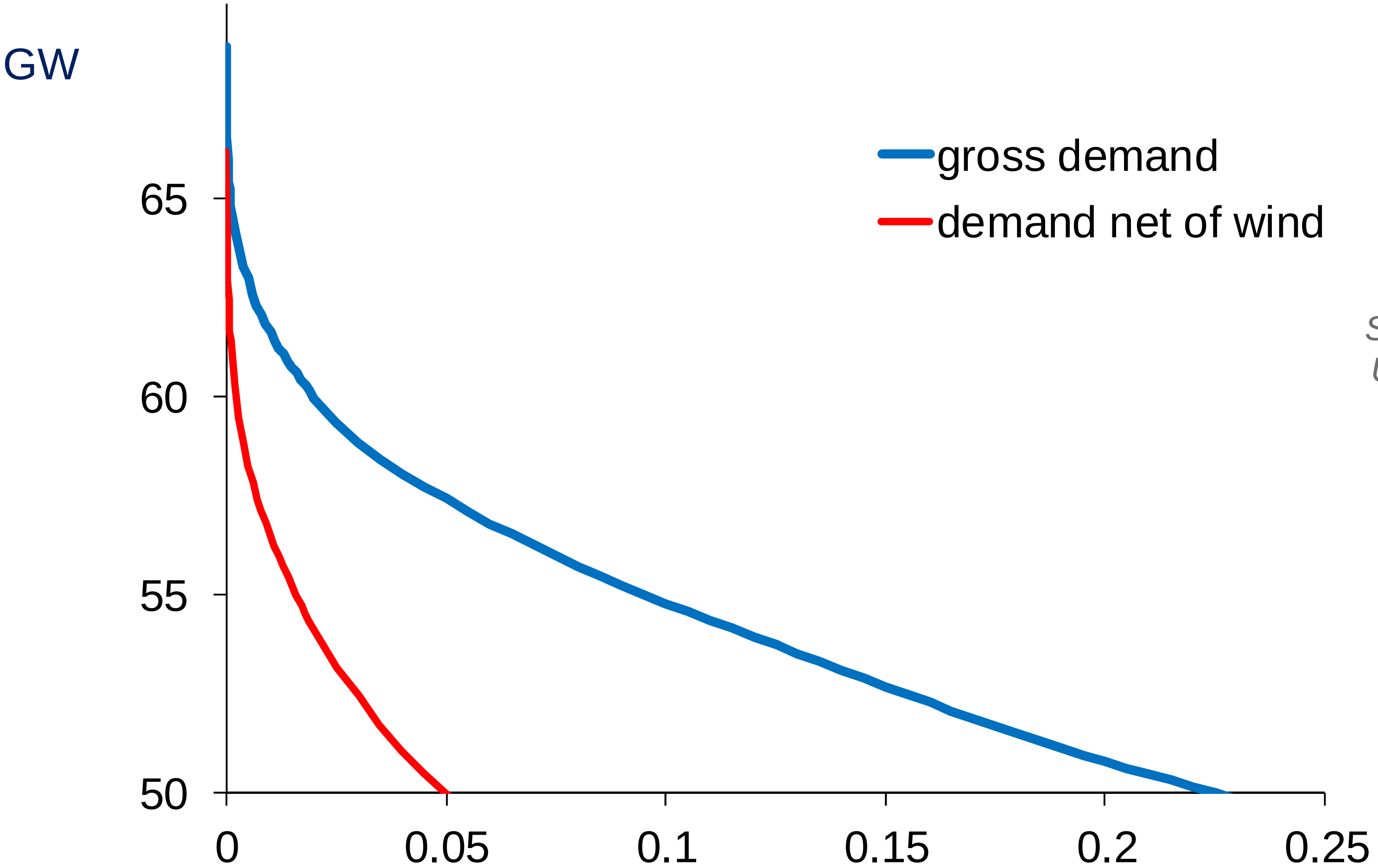
Load-duration curves: (GB prediction for 2020)



Source: Green, Utilities Policy, 2010

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The problems

- The price of carbon might be too low for low-carbon plant to be viable
- Companies might want to build the wrong type of power stations
- Largely fixed-cost generators face excessive risks when the power price follows the market price of gas
- Peaking generators face excessive risks when their running hours depend on the wind

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Electricity Market Reform: carbon policies

- Carbon Price Support
  - Variable tax to top-up price in the ETS (£30/tonne in 2020)
  - Confirmed in Budget 2011
  - Increases viability of low-carbon plant
  - Impact on EU-wide emissions:
- Emissions Performance Standard
  - No new plant with emissions above 450 kg CO_2/MWh
    - Except CCS Demonstrators
    - Not a new policy
  - All new plant is "grandfathered" at this level – this is new

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The FIT-CfD: risks for low-carbon plant

- Government wants more long-run price security for low-carbon generators
- Government wants short-run market signals for low-carbon generators
- Contract for Differences can provide both

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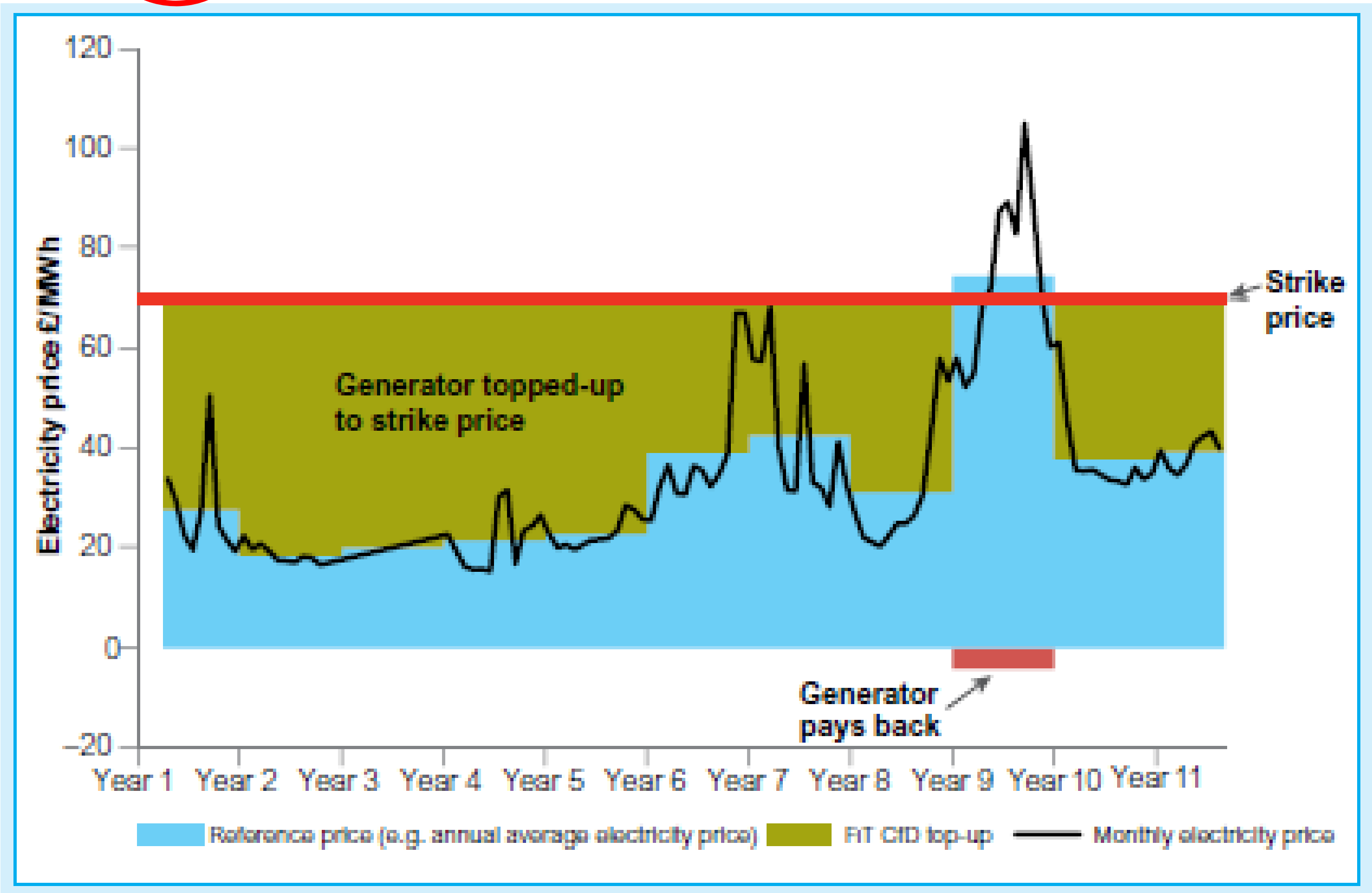
A FiT-CfD for Baseload plant



Source: DECC, EMR White Paper fig 4

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The FIT-CfD: risks for low-carbon plant

- Government wants more long-run price security for low-carbon generators
- Government wants short-run market signals for low-carbon generators
- Contract for Differences can provide both
- Strike prices to be set by auctions, but initially negotiated for nuclear and CCS
- Feed-in Tariffs are widely regarded as best practice for renewable support

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FiT-CfD for intermittent plant

- Intermittent plant would face too much basis risk with a baseload CfD
  - Have to make payments with no revenue stream when price was high and they were not generating
- Their CfD will use their metered output and the average price for the day
  - Reduces but does not fully eliminate basis risk
  - May increase the amount of compensation generator “needs” if transmission constraints stop it running

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Capacity mechanism: risks for peaking stations

- Least detailed part of the reform
  - Not to be implemented until needed
- Annual tenders, four years in advance, to buy a defined volume of capacity
  - New plant may get a multi-year contract
  - Plant with FiT-CfD excluded (double-counting revenue)
  - Secondary trading may be allowed after the auction
  - Demand-side & storage bids seen as desirable
- Penalties for non-delivery may be linked to market prices

Electricity *Market* Reform

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Current status

- Draft Bill published
- Energy and Climate Change Select Committee report:
  - CfDs may not have a “bankable” counter-party
    - Set up a single, government guaranteed, counter-party
  - Treasury cash limits on support risk “stranding” schemes
    - Allow pre-registration of projects at an earlier stage
  - No obligation to buy renewable power: may hinder market access
  - Uncertainty over capacity mechanism risks delaying investment and so ensuring that one is needed!