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## Lessons from UK energy policy & Energy Market Reform

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Presentation to meeting of IEA Working Party on Renewable Energy Technologies **"Towards a 'Third Way' for electricity market design?"** Paris, 24 March 2015



## UK Energy Market Reform - Background

"Its complicated ..."

- 'Pioneer of liberalisation' concluded the electricity market could not deliver the capital investment needed for security or decarbonisation
- Nuclear & renewables seen as key
- Intellectual evolution:
  - Academic struggles between idealised theory and emerging evidence
  - CCC concern around capital intensive investment
  - Ofgem (Project Discovery, 2009) concern around security adequacy





#### What is EMR?



EMR brings major changes to the market. Ofgem's main input has been on the design of the Capacity Mechanism and the overall institutional design.

### Capacity Market: First auction, Dec 2014 - for 4-year ahead delivery in 2018/19

- 49.3GW awarded at clearing price of £19.40/kW/year. Total cost of £960m (in 2012 prices), under half prior estimates of government (and wider expectations).
- £960m == £11 per average household, but market expected to react with lower wholesale prices, so the net impact lower, estimated c. £2 per household.
- Mix of 1-year, 3-year (refurbishment) and 15 year (new build) contracts
- Mainly old gas and coal generators successful
- One new CCGT (Trafford, 1,650MW) wins an agreement.
- 174MW of DSR wins an agreement



2.5GW of capacity is reserved for the 2017 auction, so existing plant and DSR that missed out have another chance.



**UCL** Institute for Sustainable Resources

### **Contracts for Difference**

- First CfD auction successfully completed Jan 2015, 15-year contracts, differentiated by technology clusters
- Over £315m/yr new contracts offered to five renewable technologies, incl 15 onshore wind, two offshore wind, and 5 solar projects.
- Over 2GW of new capacity expected, costing £110m/yr less than the cost implied by the administrative strike price in 2014.

	Capacity	Admin Strike price (£/MWh)	Lowest clearing price (£/MWh)	Maximum % saving on admin strike price
Solar PV	71.55	120	50	58%
Onshore Wind	1162	95	79.23	17%
Energy from Waste CHP	94.75	80	80	0%
Offshore Wind	748.55	140	114.39	18%
Advanced Conversion Technologies	62	140	114.39	18%



## UK Energy Market Reform Key lessons

- For Strategic ("Third Domain") investments eg security and sustainability - a role for government is inescapable
  - The public benefits exceed any risk-adjusted return in spot market
- Can shifting risk to government reduce costs? Yes if
  - the risks arise from private perception of policy risk;
  - markets (particularly capital markets) are myopic
  - the benefits are partly public (eg. Due to inadequate environmental pricing, or innovation / learning, etc)
- Do we need a Capacity Mechanism in addition to low carbon supports?
  - Yes in UK conditions but scope is crucial, so too is design to minimise risk of perverse incentives
- Institutional complexities
  - contracting bodies and their governance
- Terms and constraints for long term contracts
  - Hinkley Point (35yr) vs renewables (15 yrs)
  - State Aid struggles



## UK Energy & Market Reform

Some outstanding questions

- Does the EMR takes us back towards public control or new forms of competition arising from auctions?
  - More State involvement but still using competition, in more efficient way?
  - Some risks of perverse incentives remain (eg. Metered output)
  - "Subsidising" coal (CM) whilst trying to phase it out (CfDs)
- "Exit Strategy?" Revolution or evolution?
  - May be an evolving revolution
  - Can / should we move towards a "contracts market" (eg. long term green consumer contracts, community energy, bundled service contracts) as costs fall?
  - Thereby injecting some product differentiation into electricity



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# Growing emphasis on need for stable investment environment in aftermath of financial crisis



Relative decline of gross capital formation in the EU

Source: Spencer T, O. Sartor et al, "What is Needed in the EU's 2030 Climate and Energy Framework?" *Climate Strategies* working paper, forthcoming 30 Sept 14

See also House of Lords, EU Subcommittee D report, 2013: 'No country is an energy island: securing investment for the EU's future'