

The development of Energy Policy from Vesting to Electricity Market Reform – the Winding Road

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New Thinking For Energy



Electricity Vesting in 1990 / 1991 was a very different situation from now

- Almost no renewable energy or energy efficiency programmes around the world
 - Only California and Denmark
- Climate change had only just become a policy issue (Lashof 1989 paper on global warming potentials)
- Acid rain thought of as the main electricity pollution
- The monopoly CEGB had put forward a programme of 10 nuclear power plants in 1988
- Coal pits were closing rapidly post 1984 coal strike
- Gas was a 'premium' fuel until 1988

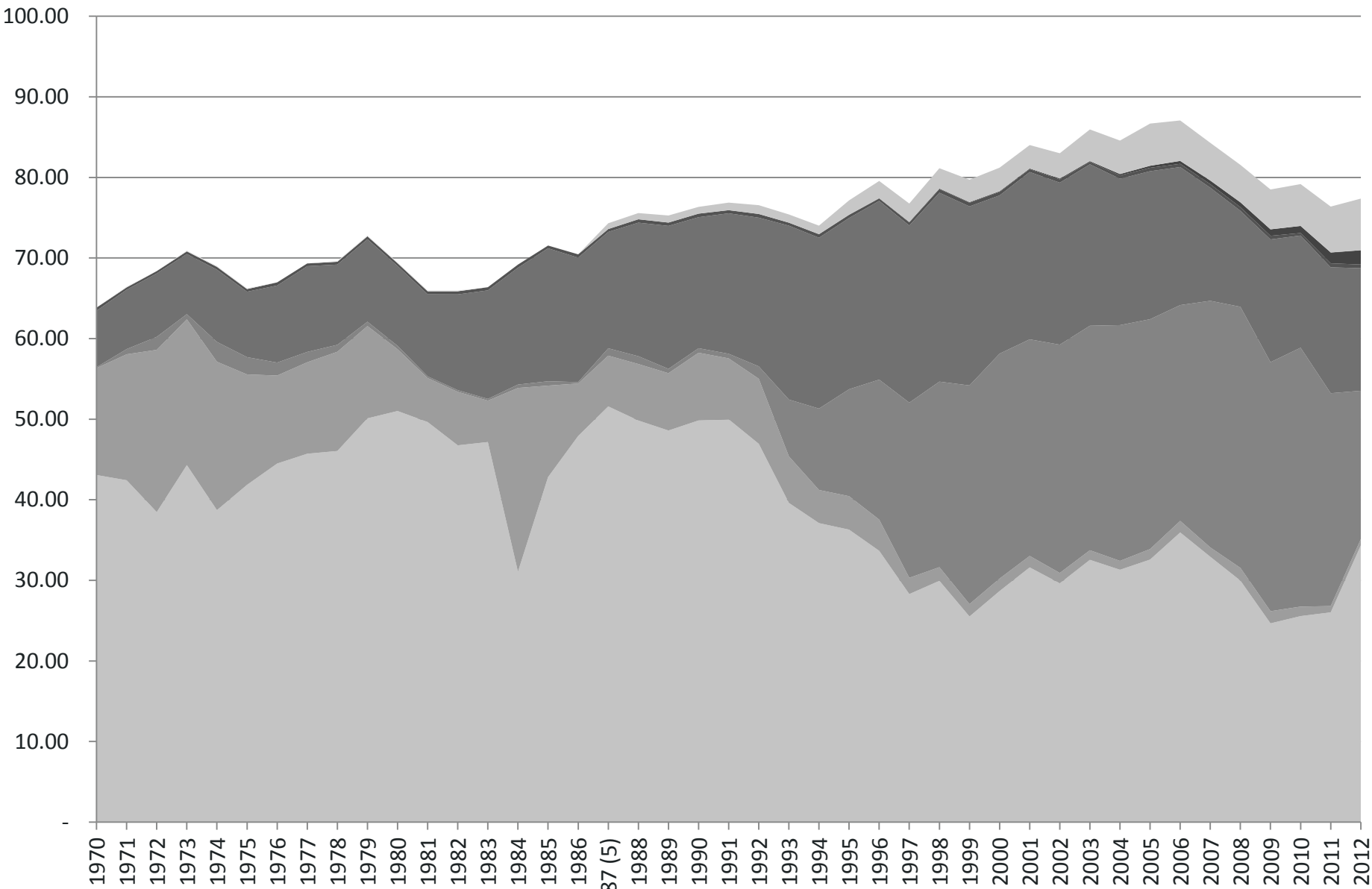
Inheritance of Vesting (1)

- Nuclear could not be privatised
 - Decision to not put off vesting further meant that England and Wales ended up with 2 generators who were able to rig the electricity market (the Pool)
 - High prices
 - Ongoing dislike of Pools in the UK to this day but failure of E&W Pool primarily because of failure of design of privatisation
 - Ended up with a Non-Fossil Fuel Obligation to support nuclear power
 - Renewable electricity supported via NFFO only as a secondary issue to nuclear
 - No debate really in Britain about need of renewable energy ever, its always been secondary to nuclear
 - The original 8 year NFFO contract was the primary cause of the 'windlash'

Inheritance of Vesting (2)

- Valuation of assets and RPI-X and RAB based regulation of networks in order that 'Sids' would not lose money has led to underlying incentive to add capital value to assets and support sales of energy as primary driver of companies which has proved very difficult to change
- Regional electricity companies in E and Wales did not like being reliant on Powergen or National Power, and led to dash for gas

Fuel used in electricity generation (Mtoe)



The 1990's, particularly 1990-1997

- A 'lost' decade after Tories unexpectedly won in 1992 and the energy world waited until 1997 when the LP and their new arguments for centrality of customers entered EP
- Becoming obvious that other countries were doing better at renewable electricity deployment and reducing energy demand
- Becoming obvious prices in the Pool were being rigged
- Becoming obvious that network regulation was not supportive of renewable electricity
- Nuclear power hit the buffers as price of Sizewell B clarified

Re-regulation in 2000

- The LP put in place 17 reviews of energy when it came into power in 1997
- Concerns about lack of engagement with customers and high prices led to Utilities Act 2000 and the bilateral electricity market, dissolution of RECs
 - One step forward, 2 steps back for renewable electricity
 - NFFO not successful because of no penalties and cost cap
 - RO, NETA / BETTA more risky for small and independents
 - The bilateral market led to VI – so that large companies owned both generation and supply and matched their generation capability to their demand
 - Bad for new entrants, smaller players and customers
- Ofgem very hands off – under Callum McCarthy – thought market would sort it

Truckers Strike of 2000

- Caused Blair to put in place the PIU Energy Review
- RCEP had put forward argument that there should be a 60% cut in carbon emissions by 2050 - revolutionary at the time
- In Feb 2002, PIU came out with a serious energy efficiency package, 20% of renewable electricity by 2020; options based policy (ie put nuclear on hold until you see how other options do); and argument that in some certain matters to do with Climate Change the environmental options could be chosen in preference (revolutionary)
 - Progressive EP was an aberration

2002- the nuclear resistance kicks in

- 2002 PIU recommendation to place nuclear energy on hold and for renewables to provide 20% of electricity by 2020
- 2003 EWP agreed to nuclear power on hold; but NOT that environment should take precedence in certain CC situations and had 10% of renewables by 2020
- Huge nuclear lobbying from time of publication of PIU
 - The supply chain knew if there was a target for renewables providing 20% of electricity by 2020, that would be the end of argument for a nuclear renaissance and so they were determined to not let that happen

Confluence of nuclear and large company wishes 2002-2008/2010

- Nuclear lobbying argued for reduced risk as means to invest in nuclear power
- Large energy companies, particularly Paul Golby, then CEO of E.on, now Chairman of EPSRC, argued for a clear long term framework for EP
- Labour Government kept on giving what was wanted to large companies and EDF but this also had, in some ways, unexpected consequences
 - 2008 Climate Change Act which set carbon reductions, and de facto chose nuclear over fossil fuels
 - Govt and Ofgem began to say that the electricity market was not set up appropriately for a 21st century electricity system
 - Electricity Supply Probe in 2008
 - Beginning of Electricity Market Reform

Governance in 2000s

- A decade of Ofgem's passivity
 - They did little about competition, prices, company profits, liquidity, transparency
 - They did not worry about customers
 - As with large companies and Government
 - Thought customers could pay
- At best, ignored decade of serious nuclear lobbying
- At best, flawed decision-making process around a centrally agreed idea that centralised power and big companies were the way forward and that their business models were correct and acceptable
 - Evidence for this entirely secondary
 - Based on customers paying

2010 onwards – the Conservatives back in power

- It was becoming clear that new nuclear power could not be privately funded
 - EMR put in place to establish process to nuclear
 - Customers to pay whatever it cost
- All sorts of factors occurred which should have caused Government / Ofgem to rethink but did not
 - Fukushima
 - China enters solar market in 2005 leading to rapid price falls
 - American shale gas
 - German and Danish electricity operation and technical experience of high levels of renewable electricity showed need for, and benefits of, flexibility

EMR: A parting of the ways – EDF versus the Big 5

- The goals of the Big 6 had been roughly similar but the realities of more and more support for nuclear power and what was happening elsewhere in the world caused a split in the wishes / interests of the companies
 - Became clear that nuclear power was not going to be privately funded
 - CfD and ring fenced market a threat to non-nuclear companies
 - Fukushima meant that German companies no longer had a German market for new nuclear knowledge
 - German energiewende, Danish experience, and then potential for Japan, meant that operational understanding of high penetration variable power systems undertook huge leap forward
 - Marginal cost prices falling
 - Threats to big company business model
 - Need for capabilities NOT capacity market

Where does that leave us? (1)

- A very different place than we started from in 1990
 - In 1990, a renewable energy target of 600 MW, very little energy efficiency, now its 80% cut on carbon by 2050
 - In 1990, basically coal and nuclear generation in the UK
 - Now some countries have very good experience of high variable RE penetration; demand side and system operation
 - The future is flexibility
 - Customers had no choice, expected to pick up the tab on everything
 - Now gone up the political scale of importance
 - Floods may have risen CC up political agenda as well

Where does that leave us? (2)

- In terms of practice change, in fact fairly limited change
 - Yes, have more renewables (ie a bit of technological change)
 - Yes, intention is to have roll out of smart grid
 - Yes, we have some energy efficiency measures

Where does that leave us? (3)

- BUT in terms of practice change - minimal
 - The efficiency of our housing stock is still poor
 - We still have millions of fuel poor
 - Our regulatory Codes still constrain change and support incumbents
 - Our DNOs still passive; our TO still all powerful;
 - The regulatory space between our SO and Ofgem and market operator confusing
 - Our markets (real time and future) lack transparency and liquidity so risky for new entrants / expensive transaction costs for small companies
 - Customers still treated with ‘disrespect’ in terms of thinking of them as captive and as the payee

Where does that leave us? (4)

- Combined collusion of Government, Ofgem and large companies have knowingly tried to stop change
 - First priority companies and not wanting them to have stranded assets
 - Customers second priority
 - Callum M, then Alistair B too relaxed about market
 - All wilfully remained blinkered to technological change
 - Too little, too late
- What Government, Ofgem and companies got wrong is how fed up customers are
 - Trust taken a battering
 - Reason why Labour Reset has hit such a nerve

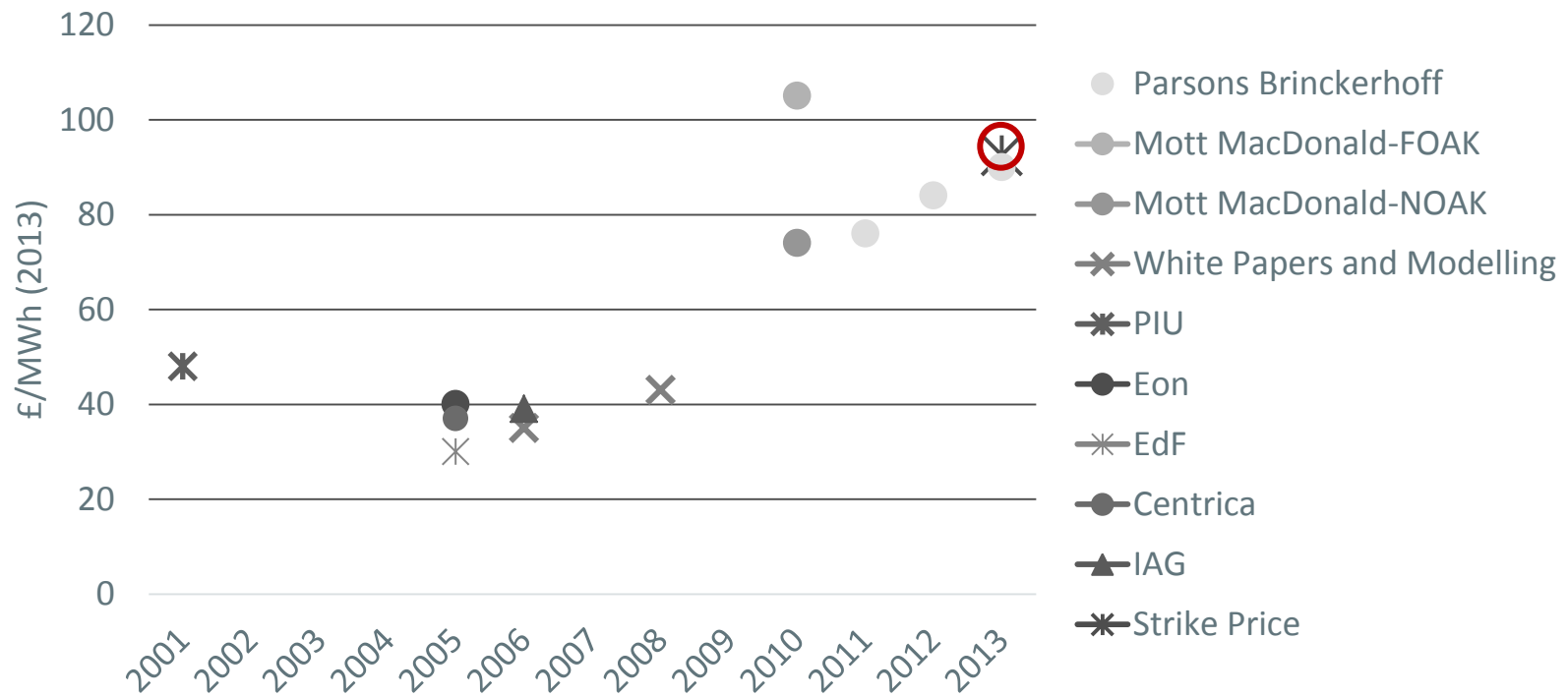
Where does that leave us? (5)

- EP in Britain in a mess
 - Political until the next election
 - Companies really mis-read the situation
 - Customers can
 - either make decisions and pay to turn energy system into one for the future
 - or keep the incumbents ticking over but getting further and further away from energy system frontier countries

What to do?

- Learn from best-practice elsewhere
- Fundamentally restructure energy governance to enable innovation to occur
 - See <http://projects.exeter.ac.uk/igov/>
 - Probably too late to change EMR
 - But capacity markets should become capabilities market to support flexibility not existing coal and nuclear
 - Retail competition plus more regulation in certain situations needs to continue
 - Arguments for retail regulation just more of the same for the large companies
- Clarity required on losers
 - Do we look after them? Or do we say, you are privatised you should have seen this coming?

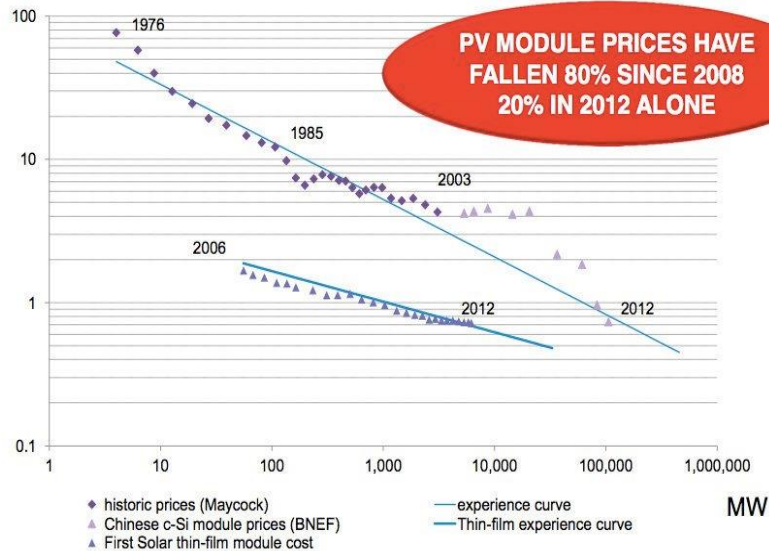
UK Forecasted Costs of Nuclear New Build



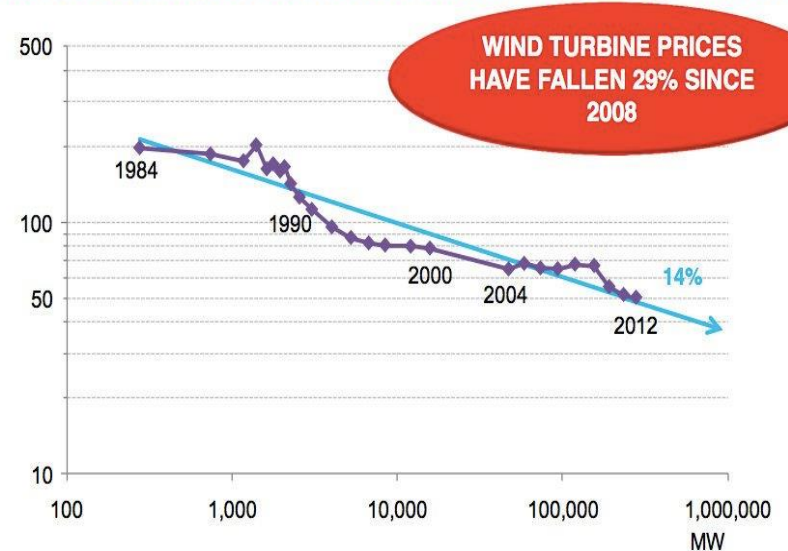
Source: Individual assessments

Renewable Costs

PV EXPERIENCE CURVE, 1976-2012
2012 \$/W



AVERAGE LEVELISED COST OF ONSHORE WIND, 1984-2012
(€/MWH)



Source: BNEF
2013