

Electricity Market Developments in Great Britain

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Outline

- Govt policy: Electricity Market Reform
 - Carbon emissions
 - Security of supply
 - Renewables
 - Smart meters
- Regulatory policy
 - Transmission expansion
 - T&D Networks – RIIO instead of RPI-X
 - Retail – trading, liquidity and complexity

Electricity Market Reform (EMR)

- Planning our electric future: White Paper for secure, affordable & low-carbon electricity
 - July 2011, update Dec 2011, legislation due 2012
- By 2030 we will have
 - Flexible, smart & responsive electricity system
 - Diverse & secure range of low-carbon sources
 - Demand management, storage & interconnection
 - Competition between low-carbon technologies
 - Network for electrification of transport & heating
 - Transition at least cost to consumer

Challenges

- Security of supply
 - 1/5 of old generation plant (19 GW) closed in 10 yrs
- Decarbonise
 - 15% renewable 2020 means 30% elec renewable (now 7%)
 - 34% carbon reduction by 2020, 80% by 2050
- Increasing demand
 - Electrification means double demand by 2050?
- Rising electricity prices
 - Wholesale costs, carbon & environmental policies
- Investment program at double current rate
 - £75bn generation + £35bn networks = £110bn by 2020

Will market deliver? No

- Market price setting favours fossil fuels, other technologies are more risky
- Entry barriers: high construction costs, illiquid market, lack of long-term buyers
- Carbon price does not reflect full social costs, & volatile, so investment uncertain
- Insufficient incentives for enough investment to meet security of supply
 - Max £950/MWh to date, might need £10,000/MWh
- Solution? Contracts low-carbon & capacity

Low-carbon generation

- Long-term contracts via Feed-in Tariffs with Contracts for Differences
 - With range of technologies: wind, solar, nuclear
- Carbon Price Floor – signal to investors
 - To top up EU ETS £0 – 20/tonne CO₂, now £9
 - Target £16 2013, £30 2020, £70 2030
- Emissions Performance Standard (EPS)
 - Max 450g CO₂/kWh – no new coal without CCS

Additional measures

- Energy efficiency drive: Green Deal
 - Stores offer Pay-as-you-Save package to customers
 - Energy retailers obliged to administer
- New Capacity Mechanism (in case needed)
 - Market-wide, open to all providers incl demand side
- System operator will administer contracts
 - Sign low carbon & capacity contracts
 - Check data, payments, monitor compliance etc
 - Govt & SO periodic assessment of strategy, 2016+
- More liquid wholesale market (Ofgem task)

Smart meters

- All residential customers to have smart meters for electricity & gas: 50m meters
 - Roll-out 2014 – 2019 (feasible? Opt-outs?)
- Cost £10.9bn = £218 per meter
 - Installation £6bn, communications £2bn, IT £1bn
- Benefit (20 years) £16bn = £319 per meter
 - Consumers: reduced energy consumption £5bn
 - Suppliers: avoided site visits & inquiries £9bn
- Net benefit £100 per meter over 20 years
- £5 per meter per year??

The new role of Government

- Government will be responsible for setting out the policy approach and objectives, and for taking final decisions on key rules & parameters.
- Government will set out and periodically revise a delivery plan with advice from System Operator.
 - This delivery plan will contain a vision and objectives, enduring design elements that will last the life of the delivery plan, and design elements that will need to be more frequently revised.

Govt economic case for EMR

- Slight bill increase in short & medium term
 - compared to cost of continuing low-carbon support incl. Carbon Price Floor & Renewables Obligation
- Existing policies: increase in household electricity bills £200 by 2030 (£485 ↑ £682)
- With Electricity Market Reform: increase limited to £160, saving £40 = 6% in 2030
 - Saving 4% for period 2025-2030
 - Saving £6-10 (1-2%) for period to 2030 as a whole

Some are sceptical

- **Cost of renewables: 6% lower elec bill?**
 - Depends critically on energy efficiency & lower usage
 - Equivalent 27% increase if all costs included in price
 - EU ETS £9/tCO₂ now but offshore wind costs £300
- **Carbon price £9 now, target £16 in 2013**
 - But investment needs £25 (£50 if no contracts)
- **Cost and feasibility of long-term contracts?**
 - How will capacity mechanism work & what impact?
- **Will customers accept prices? Poor hit more**
- **What about shale gas? Affects value of EMR**
 - PoIExch: £11bn cheaper than market or £18bn dearer

Ofgem's RPI-X@20 review

- Ofgem's review of network regulation
- RPI-X incentive regulation has been a great success over last 20 years
 - Lower prices, more investment, better service quality
- But is it appropriate for future conditions?
 - Low carbon, renewables, new smarter technologies
- Ofgem's answer: No
- But how to set price controls if future investment and output needs unknown?

Ofgem's solution

- Ofgem's approach for 2013 onwards: RIIO
 - Revenue set for Incentives, Innovation & Outputs
 - “a new way to regulate energy networks”
 - Regulator will set Outputs reflecting enhanced engagement with customers, with incentives for timely & efficient delivery & for innovation
- Fast track reviews for well-prepared plans
- Is this negotiated settlement? No.
 - Ofgem: Regulator can't leave choice of Outputs to customers - they don't represent future customers

Fast track Scots transmission

- 8 year business plans, 2 companies
- Outputs & incentives financial & reputational
 - Safety, reliability, availability, customer satisfaction, connections, environment, new investment
 - Penalties for late/non-delivery capped at 10% of rev
- Small scale innovation stimulus
 - 0.5-0.75% allowed revenue, & extra funding possible
- A list of uncertainty mechanisms
 - Including 50% sharing of capex over/underspend

Customer engagement

- Price control process faster, and controls more flexible & incentive-based
- Scots companies more geared to views of customers/stakeholders than before
 - But mainly plans for future engagement
 - Emphasis on explaining not negotiating
- Will Ofgem be able to negotiate & monitor contract in customers' interests as effectively as commercial parties would?

Liquidity

- GB liquidity has varied over time, not as high as some other markets
 - Vertical integration so less need to trade?
 - Poor liquidity hinders new entry of small generators (including intermittent) and retailers
 - Harder to index Feed-in Tariffs for renewables
- Ofgem: Big 6 must auction 25% generation
 - Big 6 generators beginning to auction day ahead
 - Day-ahead volumes up 5 fold Sept-Dec 2011
 - But not yet medium-term & shaped products
 - Not yet reference price for forward markets
- Useful or belated? How important to entry?

Transmission access

- Renewables have exacerbated old issue
- Traditional policy: invest then connect
 - i.e. build transmission before allowing generators access
- Ofgem/industry standoff trans capacity auctions
- Govt: connect and manage regime 2010
 - Connect after limited time for construction
 - SO's job to manage any transmission constraints
 - Connection times reduced for 69 large projects by ave 6 yrs
 - But growing constraint payments, socialised over all
- Ofgem Project Transmit: suitable for low-carbon?
 - Socialise transmission charges too? (Scots like it)
 - Or refined locational charges with discount for wind?

Retail competition

- GB retail market works better than most others
- But Ofgem concerned: too little switching
 - Higher (10-15%) prices to sticky (less active) customers
 - Customers would engage more effectively if it were easier to compare tariffs – an attempt to “nudge” customers
- Proposal: limit retailers to only 1 standard tariff per payment method and Ofgem will set a common monthly fixed charge for all retailers
- But useful tariff innovations would be banned
 - Zero fixed charges, online & dual fuel discounts, green tariffs
- Higher regulatory costs paid by customers
- Pricing would again be politicised

Conclusions

- Major policy switch: from competitive markets to central planning (Govt & regln)
- Ambitious, but prompts many questions
 - Will these plans & mechanisms work?
 - What will be left of the competitive market?
 - And of independent regulation?
 - Is this policy good value or unduly costly?
 - Will consumers accept doubling of prices?
 - What if fossil prices do not rise as assumed?
- How long before the next change of policy?