EUSERS SUMMER SCHOOL

Performance and Governance of Services of General Interest.

Critical perspectives on Energy, Telecommunications, Transport and Water Reforms in the EU

***June, 27th – July 1st* 2016**

Performance and Governance of Energy in the EU

Professor Steve Thomas
University of Greenwich

Milan, June 28, 2016

JEAN MONNET NETWORK

Co-funded by the European Union

Outline

- What are the unbundled energy businesses: characteristics, ownership, technical & commercial synergies
- Wholesale competition
- Retail competition
- Corporate factors

Industry structure 1996

- Nationally-owned integrated monopoly: France, Italy, Greece, Portugal, Ireland, Eastern Europe etc
- One nationally-owned integrated companies & many locally-owned companies, mainly distributors, some private ownership: Sweden, Finland, Eastern Europe
- Local public ownership: Denmark, Netherlands, Austria
- Mainly private ownership, large integrated companies: UK, Belgium, Spain
- Mixed local distributors & large private generators: Germany

Industry structure 2016

- Nationally-owned company & few privately-owned companies: France, Greece, Ireland, E Europe
- Privately-owned companies: UK, Spain, Belgium, Netherlands
- One nationally-owned (part-privatised?) company & locally-owned mostly distribution companies, some private ownership: Sweden, Finland, Italy, Denmark, Portugal, E Europe
- Local public ownership: Austria
- Mixed local distributors & private generators: Germany

Transmission

- Might comprise 5-10% of electricity bill
- Mostly ownership unbundled
- If regulator is effective no synergy with competitive electricity businesses
- Technical synergy with electricity distribution, gas transmission & distribution, eg NGC, Energinet
- Seen as a low risk safe investment
- Could greater use of decentralised generation leave transmission assets as vital for security but little used therefore ‘stranded’, eg Australia?
- Some countries see transmission as strategically important and should be publicly owned – Finland, France, Denmark, Netherlands
- Unbundled assets owned by transmission companies with international holdings, eg NGC, TenneT, Elia or institutional investors, eg Amprion, or national companies, eg Terna, RedElectrica

Distribution

- Might comprise 25-30% of electricity bill
- Legal unbundling required by EU Directive
- If regulator is effective no synergy with competitive electricity businesses
- Technical synergy with gas distribution & gas & electricity transmission
- Seen as a low risk safe investment
- Greater use of decentralised generation increases the strategic importance of distribution
- Unbundling slower than for transmission
- In UK, 14 distributors, now owned by 6 companies: A US utility, a UK utility & a Spanish utility with UK generation & retail, a Hong Kong billionaire & a US billionaire, infrastructure funds
- 8 UK gas distributors owned by 4 companies: NGC, Hong Kong billionaire, venture capital company & UK utility

Generation

- Might comprise 60% of electricity bill
- Cannot own transmission, must be legally separate from distribution but no limits on integration with retail
- Commercial synergy with electricity retail. Generators nearly all try to integrate with retail
- Newer technologies, eg CCGT, renewables place fewer demands than traditional technologies, eg coal, nuclear
- Decentralised generation lowers entry barriers to new generators

Retail

- Retail might comprise 10-20% of electricity bill
- Must be legally separate from distribution but no limits on integration with generation
- Unlike other businesses, no physical assets, just brand name & customer loyalty
- Huge value to generators. In 2002 UK generators bought retailers valuing the companies at ~£200/consumer
- Most household consumers seldom switch so a customer has high value to underwrite genertion
- Much less risky to sell generation to a ‘captive’ consumer than to an unpredictable commodities market

Wholesale markets

- The Commission ‘Properly functioning long-term & short-term wholesale markets, which reflect the economic value of power at each point in time in each area can steer investments to where they are most efficient.’ ‘A sufficiently high carbon price also promotes investment in clean, low-carbon technologies.’
- Creation of an efficient wholesale market is the only justification for liberalisation/marketization of electricity: transmission & distribution remain regulated monopolies, retail margin to too small for effective competition
- Wholesale market must achieve 3 things: set the price for bulk power purchase; give investment signals for new generation; offer low entry barriers to new generators & retailers
- Most markets do not meet 1st criterion, none meet 2nd or 3rd

Could a commodities market for electricity work?

- In a competitive market, prices achieved & volumes sold unpredictable
- Commodities markets show ‘hog’ cycles. In price troughs, high cost suppliers go bust. Oil price 2012 $110, 2016 $30. If you developed a field costing $80 in 2012, how would you be doing now?
- Market price tends to marginal cost of marginal supplier. Renewables marginal cost is zero so collapse of wholesale prices predictable. Is it sustainable? Investors have to recover fixed costs at some point
- Supply & demand need not balance at all times because of substitutes, stocks & lack of interdependence. Electricity can’t be stocked, generally has no substitute, has low elasticity & huge costs to supply/demand imbalance
- But a commodities market can only work if companies are free to choose the cheapest option. We will not be in that position for the foreseeable future because of need to meet GHG targets
- The EUETS was meant to put a price on C so low-carbon would be the cheapest option but after 10 years, it is further from working than ever
- Even if the C price accurately reflected costs, would the market price of C be predictable enough to make €bn investments?

Low-carbon generation

- Countries introducing various schemes to give incentives for low-carbon generation, e.g. Feed-in Tariffs, Renewable Obligations, Capacity Auctions
- These must remove exposure to market prices for long enough to ensure fixed costs are covered. The more capacity is covered by these measures, the more the market is compromised
- All can stimulate capacity if well-designed, all can fail if badly designed
- Will there come a point when low-carbon is cheap enough that these forms of support are not required? How do we make the transition away from centrally planned support?

Other market compromises

- EUETS: Carbon price floor to remove C market risk introduced in UK in 2013 (but floor price increase abandoned), & France in 2017. Will tend to reduce market price
- Liquidity: Most European markets are not liquid enough to ensure prices reflect costs & give confidence no price manipulation. UK introduced liquidity measures to force generators to offer some of the output to the spot market. Limited success
- Security of supply: In a free market, security depends on enough capacity being profitable to keep the lights on. Is that secure enough? Capacity payments introduced in many countries paid to sufficient generators to meet peak demand. Will tend to reduce market price

Is retail competition a good deal for household consumers? UK experience

- The Commission ‘Consumer interests should be at the heart of this Directive’ ‘The freedoms which the Treaty guarantees the citizens of the Union are achievable only in a fully open market, which enables all consumers freely to choose their suppliers.’
- Are the costs greater than the benefits?
- Costs: marketing (?), commission to web-sites (~€75), registration (?)
- Price comparison web-sites (PCWs) tell you what the companies charged yesterday, not tomorrow. PCWs are not charities!
- Can consumers identify the best deal? UK research says no
- By 2012, UK ‘Big 6’ companies were offering 500 tariffs
- Government introduced measures to require each company to offer only 4 core tariffs to come into force in 2014
- But in 2016 Competition & Markets Authority recommended scrapping of 4 tariffs rule to allow ‘innovative’ tariffs

Is retail competition a good deal for household consumers? UK experience

- From 2002, UK retail market dominated by ‘Big 6’ integrated generator retailers. By 2012, Big 6 had 99% of household market & switching rate 12%. Are the switchers serial switchers?
- By 2015/16, switching still 13% but by end 2015. Big 6 share down to 88%
- Of the 10 cheapest deals for me all are offering 1-year fixed price deals, 8 are from companies less than 1 year old, 1 is a supermarket & the other a co-operative bank
- What do you deduce from this?
- https://www.ofgem.gov.uk/data-portal/retail-market-indicators

Electricity prices: What can be learnt?

- Country comparisons reflect things than efficiency, eg resource availability, system size, currency exchange rates
- Time trends reflect fossil fuel prices
- Need a ‘counterfactual’ to determine impact of liberalisation or privatisation
- Focus on households, large consumers get special deals, have market muscle
- Use pre-tax prices. With tax, Danish prices are highest in Europe, without, nearly the lowest
- Most expensive power in UK, Spain, Belgium, Ireland
- Cheapest power in Nordic countries & Eastern Europe
- Is power cheap in Nordic region because of public ownership, Nordic ethic, hydro resource availability or effective markets?
- http://appsso.eurostat.ec.europa.eu/nui/setupDownloads.do

GEO/TIME	2011S1	2011S2	2012S1	2012S2	2013S1	2013S2	2014S1	2014S2	2015S1	2015S2
EU 28	0.1281	0.1313	0.1333	0.1382	0.1368	0.1386	0.1373	0.1397	0.1402	0.1419
EU 27	0.1284	0.1316	0.1336	0.1384	0.1370	0.1389	0.1376	0.1399	0.1405	0.1422
Euro area	0.1293	0.1320	0.1330	0.1372	0.1364	0.1387	0.1357	0.1377	0.1361	0.1373
Belgium	0.1572	0.1595	0.1590	0.1684	0.1583	0.1641	0.1673	0.1678	0.1817	0.1842
Bulgaria	0.0688	0.0727	0.0706	0.0796	0.0771	0.0735	0.0689	0.0746	0.0785	0.0798
Czech Rep	0.1232	0.1208	0.1235	0.1238	0.1249	0.1223	0.1049	0.1043	0.1040	0.1057
Denmark	0.1173	0.1201	0.1130	0.1063	0.1064	0.1020	0.1038	0.1010	0.0992	0.0940
Germany	0.1406	0.1395	0.1441	0.1432	0.1493	0.1489	0.1435	0.1440	0.1431	0.1427
Estonia	0.0704	0.0763	0.0771	0.0794	0.0994	0.1007	0.0967	0.0982	0.0951	0.0951
Ireland	0.1584	0.1755	0.1850	0.1954	0.1951	0.2026	0.2008	0.2085	0.1970	0.1991
Greece	0.1025	0.1003	0.1065	0.1072	0.1170	0.1193	0.1204	0.1216	0.1211	0.1227
Spain	0.1597	0.1684	0.1766	0.1789	0.1752	0.1787	0.1702	0.1861	0.1815	0.1864
France	0.0994	0.1017	0.0986	0.1070	0.1051	0.1105	0.1064	0.1094	0.1067	0.1107
Croatia	0.0918	0.0925	0.0965	0.1100	0.1091	0.1060	0.1004	0.1013	0.1008	0.1003
Italy	0.1397	0.1412	0.1445	0.1525	0.1498	0.1501	0.1539	0.1468	0.1507	0.1479
Cyprus	0.1731	0.2035	0.2338	0.2414	0.2277	0.2028	0.1861	0.1915	0.1574	0.1463
Latvia	0.0957	0.1100	0.1143	0.0955	0.0964	0.0853	0.0860	0.0854	0.1083	0.1096
Lithuania	0.1004	0.1009	0.1042	0.1048	0.0860	0.0878	0.0893	0.0883	0.0874	0.0863
Luxembourg	0.1451	0.1436	0.1468	0.1477	0.1447	0.1429	0.1431	0.1431	0.1331	0.1331
Hungary	0.1336	0.1192	0.1181	0.1233	0.1061	0.1019	0.0946	0.0902	0.0887	0.0902
Malta	0.1572	0.1586	0.1593	0.1598	0.1585	0.1609	0.1404	0.1189	0.1197	0.1207
Netherlands	0.1251	0.1343	0.1317	0.1377	0.1322	0.1374	0.1306	0.1269	0.1261	0.1228
Austria	0.1442	0.1444	0.1433	0.1412	0.1413	0.1361	0.1321	0.1294	0.1261	0.1239
Poland	0.1145	0.1052	0.1106	0.1195	0.1155	0.1121	0.1107	0.1097	0.1125	0.1105
Portugal	0.1015	0.1068	0.1105	0.1174	0.1210	0.1243	0.1268	0.1301	0.1150	0.1153
Romania	0.0848	0.0823	0.0795	0.0748	0.0890	0.0896	0.0910	0.0906	0.0927	0.0938
Slovenia	0.1079	0.1149	0.1193	0.1192	0.1177	0.1176	0.1152	0.1151	0.1123	0.1126
Slovakia	0.1372	0.1395	0.1400	0.1404	0.1384	0.1366	0.1224	0.1237	0.1223	0.1232
Finland	0.1081	0.1108	0.1089	0.1097	0.1102	0.1087	0.1070	0.1050	0.1026	0.1009
Sweden	0.1376	0.1340	0.1312	0.1345	0.1359	0.1321	0.1264	0.1194	0.1183	0.1202

Corporate aspects

- A large enough field of competing companies is essential for competition. 20 years after the Directive, most markets are *de facto* monopolies, duopolies or at best oligopolies
- Does the Commission care? 'Many markets are oligopolies, we know how to deal with oligopolies'
- By 2003, market increasingly dominated by a few companies with markets in more than one country: EDF, RWE, EON, ENEL, Endesa, Suez/Electrabel, Vattenfall
- By 2010, only 5 remained: EDF, RWE, EON, ENEL/Endesa, GDF-Suez (ENGIE). What has the Commission done about this?
- By 2016, companies retreating to home markets, carrying excessive debts and EON, RWE & EDF in serious difficulties
- These large companies achieved dominance from use of large complex technologies & hoped CCS, nuclear, Desertec etc would allow them to continue to dominate
- But they cannot compete with small, new companies using renewables etc (often protected from the market). They are being caught with inadequate funds for long-term nuclear liabilities like decommissioning

Public ownership

- Only UK (1990) and Portugal fully privatised nationalised industries. ENEL (~30%), Fortum (~55%), PPC (~55%) DONG (~50%), EDF (~85%) part privatised. Vattenfall, ESB fully state-owned

- In non-regulated markets what can a publicly owned company do that a private company will not do? Do nationalised companies behave differently in foreign markets?

- Picture mixed for local public ownership. Largely unchanged in Nordic markets, privatised in Netherlands, part-privatised in Italy, re-emerging in Germany

- Is ‘re-municipalisation’ a Germany-only phenomenon; is it due to trust in public ownership and disillusionment with private ownership; is it relevant in countries with little scope for local public enterprise?