



UNIVERSITY OF  
CAMBRIDGE

Electricity Policy  
Research Group

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# ***The Single Market in Electricity (and Gas): Success and Failures***

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# Outline

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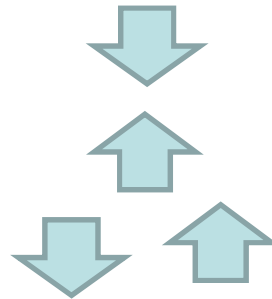
- Theory and practice of reform
- Evidence on reform impacts
- Lessons so far
- Future policy

# The Objectives of Energy Policy

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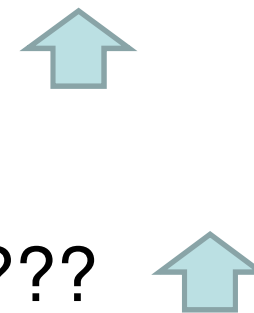
- The impossible trinity:

- Competitiveness
- Energy Security
- Decarbonisation



- The other ones:

- Elimination of (energy) poverty
- Renewables??
- Green jobs/economy/technology???



# Lessons from economic theory

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- Number of firms (+) and market shares (-)
  - Competitive generation and retail markets
- Entry barriers (-)
  - Freer entry to generation and supply
- Market size (+)
  - Increased and local market rules harmonised
- Regulation of natural monopoly networks
  - incentive based and independent

# Experience of Electricity Markets

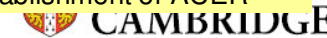
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- Vertical integration a problem (e.g. Chile)
- Ineffective Regulation a problem (e.g. NZ)
- Collusion (or gaming) a problem (e.g. UK, California)
- Entry barriers a problem (e.g. France, Germany)
- Security of supply an issue (e.g. NY, Italy etc.)

# EU Liberalisation Timeline

Year	National Legislation	National Regulation	EU Directive etc.
1988			White Paper
1989	England & Wales	England & Wales	
1990	Norway		Transit + Price Transparency
1991	Portugal	Norway	
1992			
1993			
1994	Spain		
1995	Portugal, Finland	Finland, Spain	
1996		Portugal, Italy	1st Electricity Directive
1997	Spain		
1998	Germany, Netherlands	Netherlands	1st Gas Directive
1999	Ireland, Belgium, Italy, England and Wales	Ireland	
2000	Luxembourg, France	France, Denmark	
2001	Luxembourg	Austria	
2002			
2003			2nd Electricity Directive, 2nd Gas Directive, Regulation Cross Border
2004	Latvia, Estonia, Lithuania, Poland, Czech Rep., Slovakia, Hungary, Slovenia, Malta, Cyprus.		
2005		Germany	
2006			
2007	Bulgaria, Romania		
2008			
2009			Third Energy Package (3rd Electricity and Gas Directives); Establishment of ACER

Source: CEER (2004) and own data



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# Regional Markets within EU



Source: Eurelectric (2004)

# Measuring Performance

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- At the sector level a good performance if:
  - Prices fall on average and converge across Europe.
  - However may need to be some rebalancing of individual prices.
  - Tariffs should be more reflective to market conditions.
  - Network tariffs should fall as regulation toughens and efficiency improves.
  - More efficient use should be made of reserve capacity.

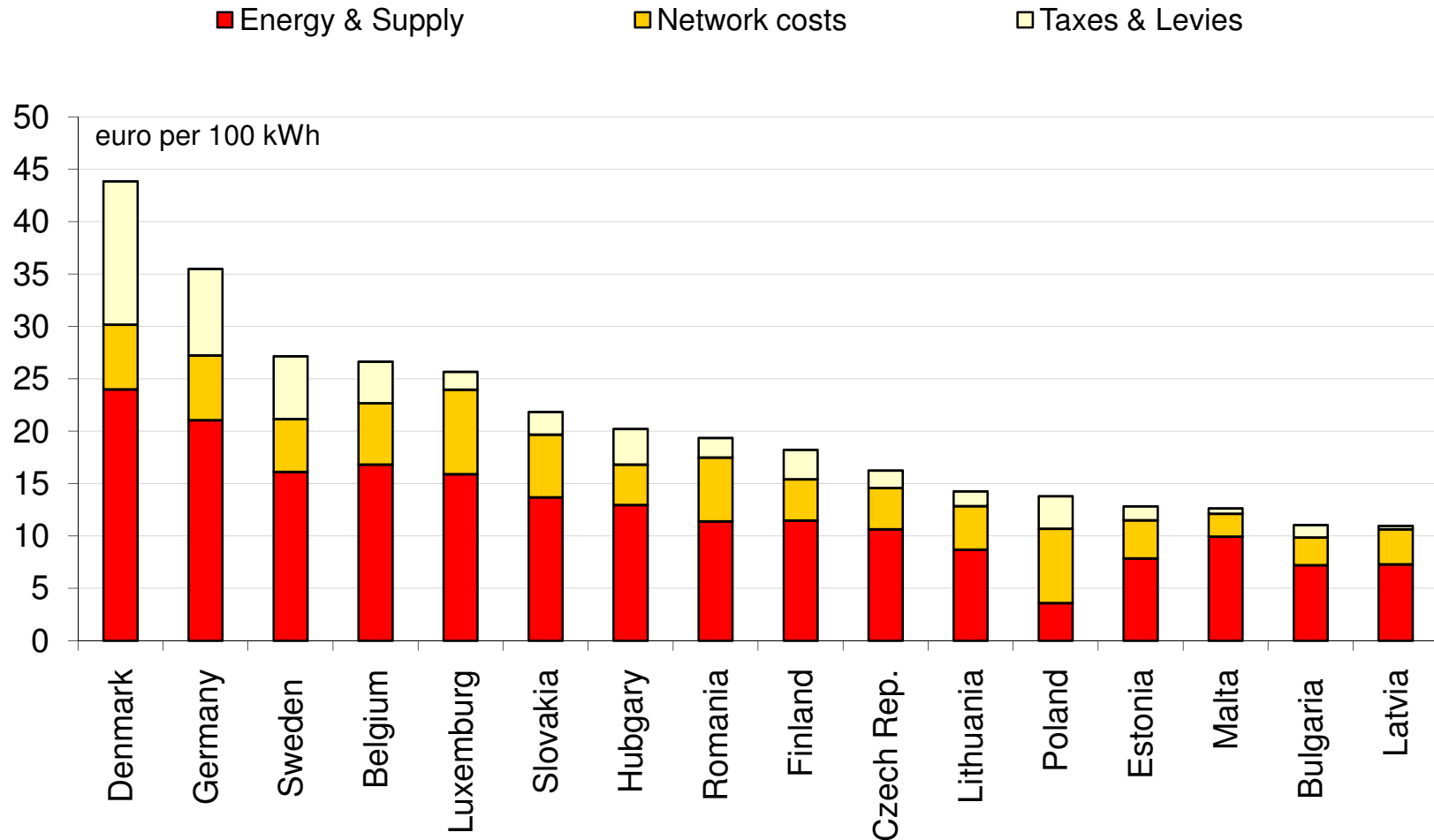


# Measuring Performance 2

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- At the firm level good performance (*for society*) if:
  - Market structure in generation and retail should begin to look more competitive.
  - Productivity should rise.
  - Merger activity should increase to realise efficiency gains but these should be pro-competitive not anti-competitive.
  - Investment should be adequate and rates of return sufficient but not excessive.

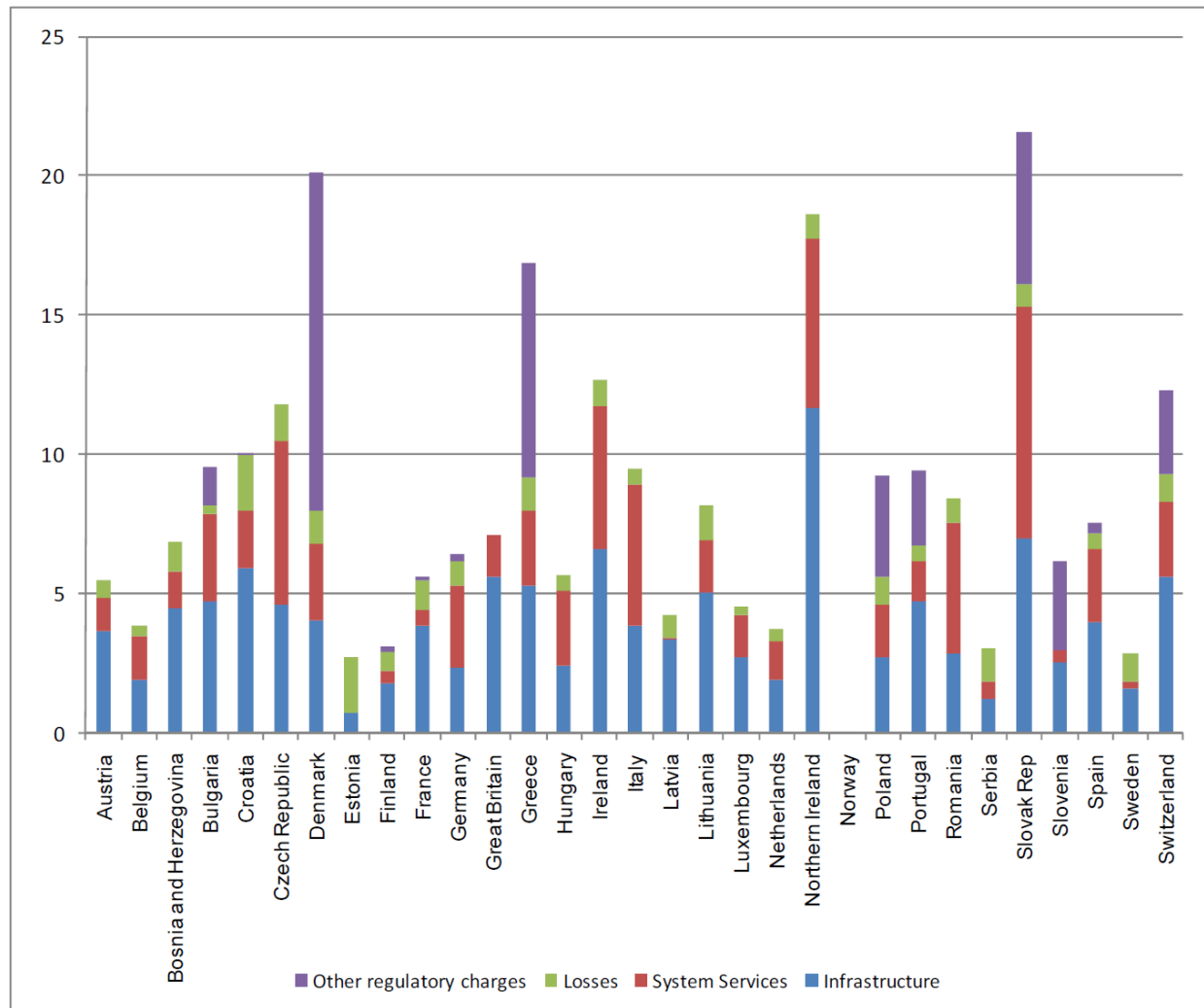
# Estimated electricity price breakdown



Source: 2008 figures: EC Benchmarking Report (2009)

# Electricity Transmission Tariffs

Euro per MWh

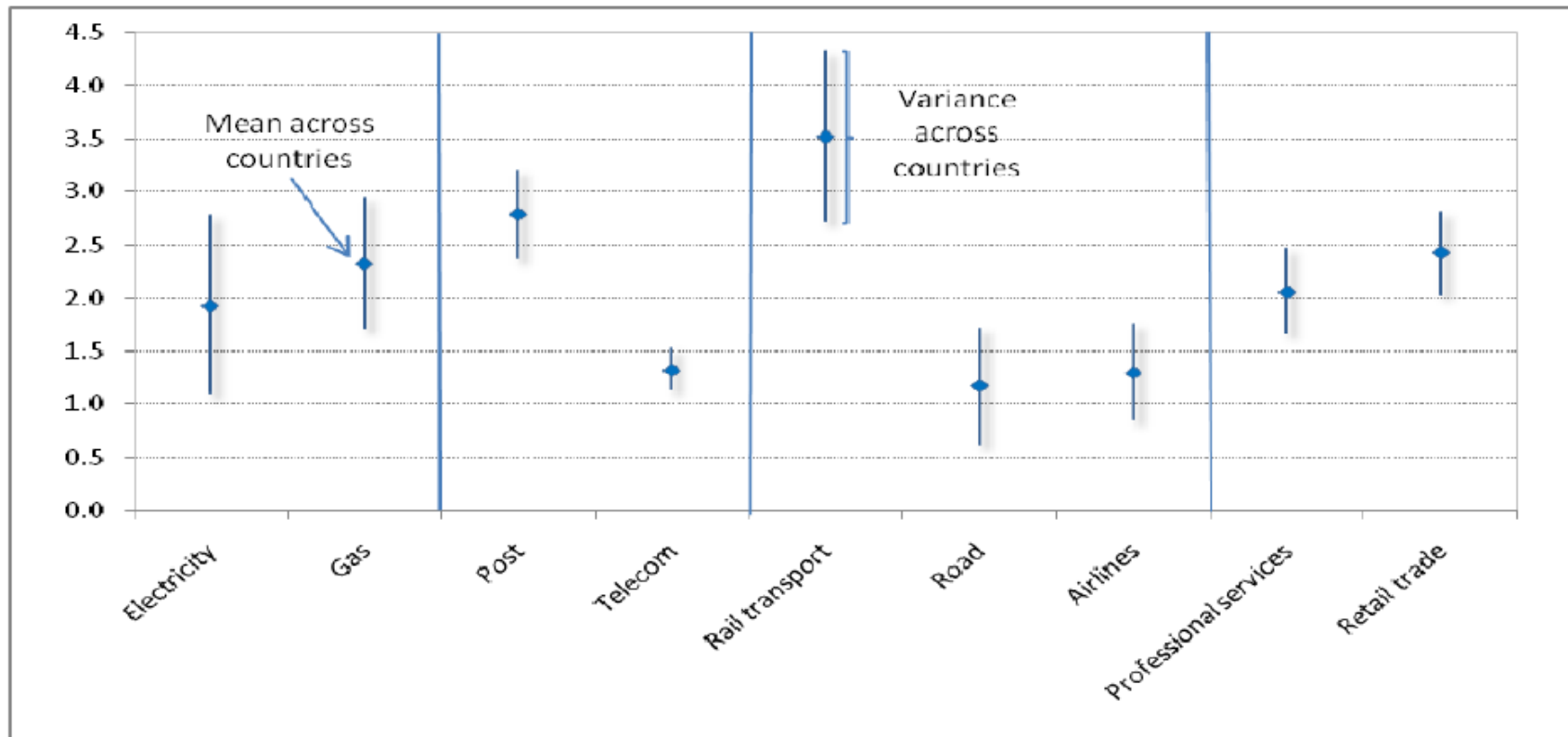


Source: 2010 figures:  
Entsoe (2010), Overview of  
Transmission Tariffs in  
Europe, 2010 Synthesis, p.17.

# Electricity Liberalisation in context 2008

(0-6, 0=least restrictive)

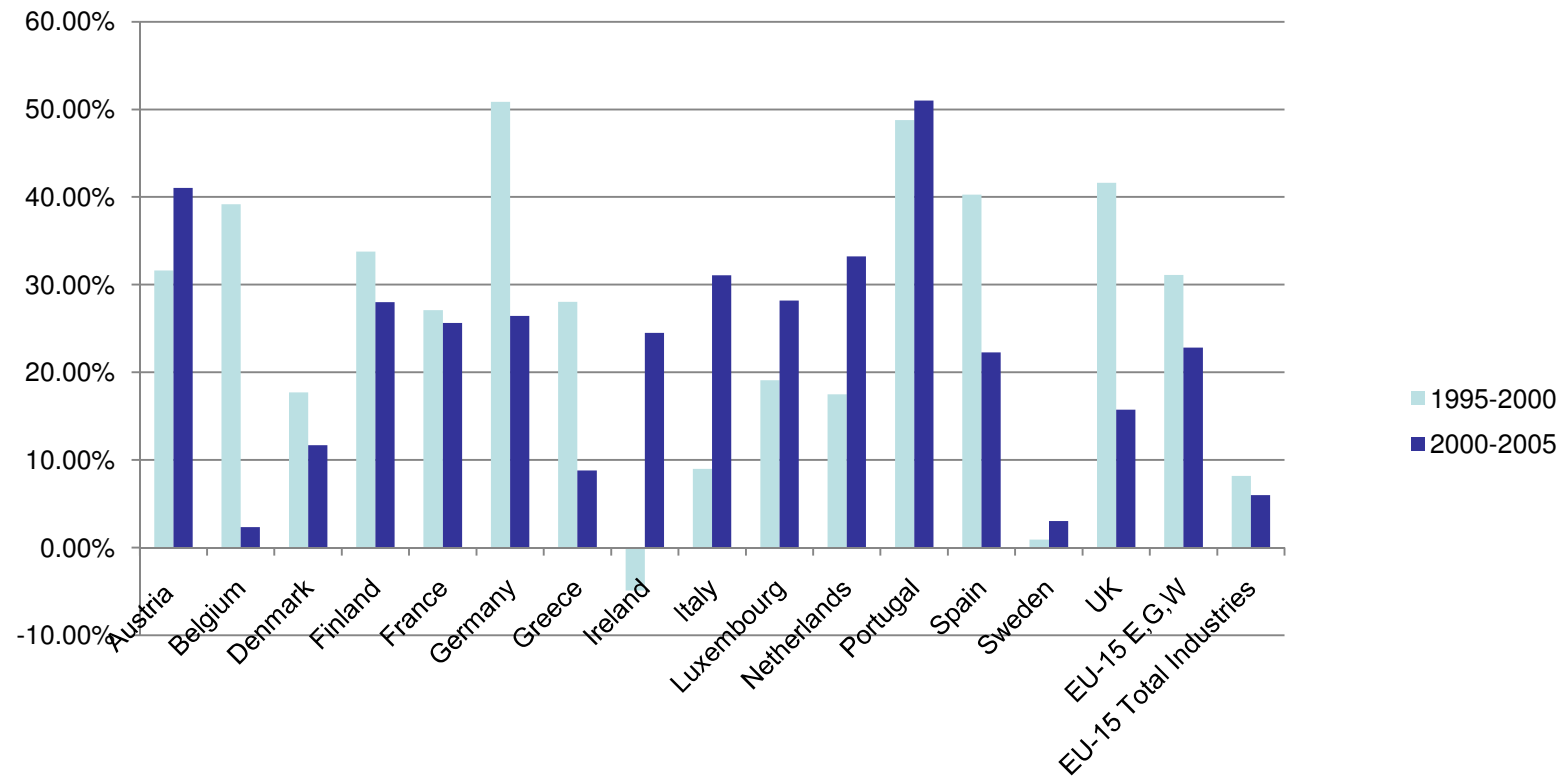
Panel B: by sector



Source: Wolfi et al., 2009, p.26.

# Labour Productivity

## Electricity, Gas and Water 95-05



Source: EU KLEMS database: Output per hour worked (LP\_I).

# Electricity stock (Light) vs General stocks (Dark)

Source: <http://www.stoxx.com/indices/benchmarking.html>



# Evidence on Performance Effects

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(see Pollitt, 2009a)

- Academic evidence in Steiner (2001), Hattori and Tsutsui (2004), Fiorio et al. (2007) and da Silva and Soares (2008):
  - Strong evidence of productivity improvements
  - Weaker evidence of price benefits
  - Some evidence of price convergence
- These cross-country econometric studies suffer from inability to satisfactorily measure reform as a package.
- Other evidence (e.g. Copenhagen Economics, 2005) shows stronger improvements in leading reform countries at the micro and macro-economic level.
- Comparison to other sectors, esp. telecoms, implies some way to go (Wölfl et al., 2009).

# Successes

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- Impressive forcing effect due to Directives
  - Opening proceeding rapidly
  - Standardisation of structures and rules
  - Strong support from European Commission via directives and sector enquiry (2007)
- Market benefits:
  - Increased trading
  - Improvements in quality of regulation
  - Impressive labour productivity gains
  - Some price falls and convergence to 2003
- Consistency of belief in (energy) markets rewarded



# Challenges to reform

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- Market challenges:
  - Price divergence since 2003
  - Continuing (and increasing) market power
- Social Cost Benefit of Reforms still difficult
  - Consumers were seeing lower prices and convergence
  - Profits of EU electricity firms, not suffering unduly
  - Impact on government unclear but not significantly –ve
- Significant issues remain
  - Retail competition per se
  - Competition in the market for gas
  - Security of supply agenda
  - Climate change policy impact: 20-20-20 targets=?
  - Vulnerable customers

# What should be next?

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- Policy towards natural gas (Findlater and Noel, 2010)
  - Gas improves security (especially in short run), affordability and decarbonisation
  - A single European gas market improves all three
- Competition on supply side (e.g. Parail, 10)
  - Competition enforcement action by Commission and nation regulators significant
  - Stricter policy on mergers
  - Extension to networks especially for offshore and interconnectors
- Policy towards carbon (e.g. Noel and Pollitt, 2010)
  - Toughening EUETS has to be at the centre of decarbonisation policy
  - Use it properly or lose it!

# What should be next? 2

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- Renewables (see Pollitt, 10, Lange, 10)
  - Renewables directive not credible
  - Interferes with both EUETS and energy markets and must be made compatible with both
  - Are currently disgraceful con trick as climate policy
  - Need optimal subsidies for renewables
- Role of EU Commission (see Pollitt, 09a, 09b)
  - Very important so far
  - Needs to sort out competing directives and focus on competitiveness and carbon
  - 4<sup>th</sup> Energy Package?

# UK electricity market reform? (see Pollitt, 11)

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- Capacity Markets ?
- Emissions Performance Standard ???
- Carbon Price Support YYY
- Low Carbon CFDs Y??
  
- Bill impacts:
  - Households: +33% by 2030
  - Businesses: +62% by 2030
  - Wholesale prices: +80% by 2024

# Remarks on Energy Policy

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- The size of *the current energy ‘policy mess’ is substantial* at the national and at the EU level.
- The *EU Single Market Project is a great one* – it still applies to the electricity market and is key to progress.
- In electricity *the project has been high-jacked by investment interests* in renewables and energy security.
- Only policies with *clear theoretical/empirical support and overall consistency* are worthy of EU-wide agreement.
- The market discovery process (accompanied by anti-monopoly policies) is the only one capable of delivering decarbonisation of electricity with efficient costs and prices.

# Discussion questions

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- ***Is there a need for 4<sup>th</sup> Energy Package and if so, what should be in it?***
- ***What lessons and challenges are there in the UK's proposed electricity market reforms?***

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