

Innovation and Governance Institutions, Rules and Regulations

Exeter Politics Department
November 18th 2013



New Thinking For Energy



IGov and the Energy Policy Group

- Energy Policy Group has 6 staff, 7 PhD students and 10 associates
- Current Research Themes:
 - Innovation
 - Energy resilience
 - The demand side
 - System change and scale
 - Supply chains
 - Distributed generation and smart grids
 - Domestic energy behaviour and practice
 - Low carbon skills
 - Community energy and community renewables
 - The dynamics and value of small-scale energy transitions
 - Design of European renewable energy policies
 - Nuclear power
 - Affordability and fuel poverty
 - Politicisation and de-politicisation of energy policy
 - European 2030 Energy Policy
 - British gas policy, including from renewable energy sources

Aims of IGov

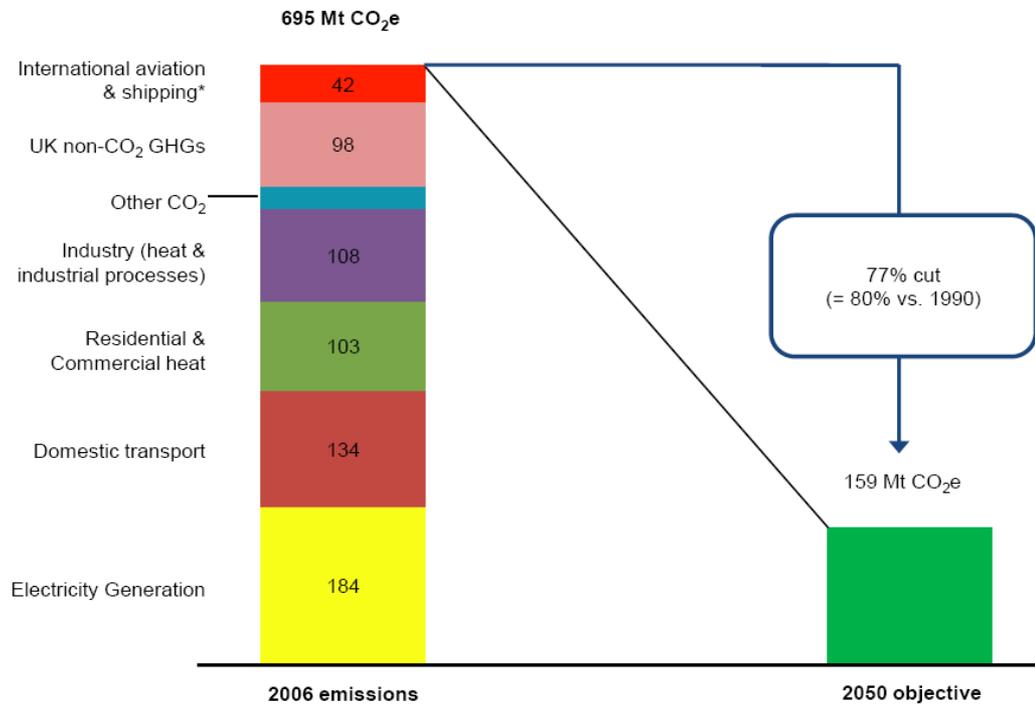
- Understand and explain the nature of change towards a **sustainable and affordable** energy system, focusing on the complex inter-relationships between governance and innovation
- Examine the complex evolution of energy governance institutions, causes of change and impacts in a 4 year comparative study (UK, Germany, Denmark , US – California and Texas)
- Disseminate findings widely – within political and civil service circles

Thinking Behind IGov

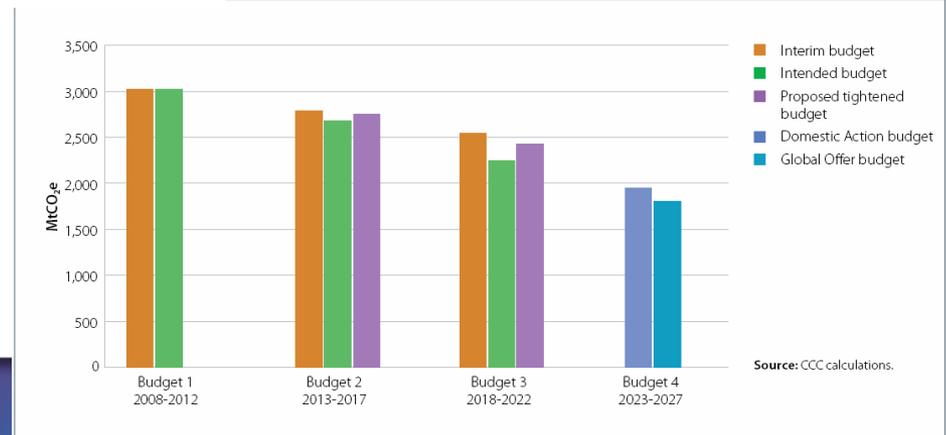
- Sustainable energy transition central to climate change mitigation - a deeply political project
- Too little understanding of how forms of governance (policy, regulation, incentives, institutions) and energy transitions inter-relate
- UK failure to govern successfully for energy transition
- However, different countries have so far been more successful at supporting innovation and energy system transition – how and why?
- Can the UK learn from other political and regulatory models with regard to energy or is it institutionally too different (or are sectors more important)?

The challenge of reducing CO₂ emissions

Figure 2.1 The scale of the challenge



5-year carbon budgets (2008-2027)



Source:
Committee on Climate Change 2008
and 2012, www.theccc.org.uk

Source: DECC GHG Annual Emissions

Table 1: Emissions of greenhouse gases (MtCO₂e)

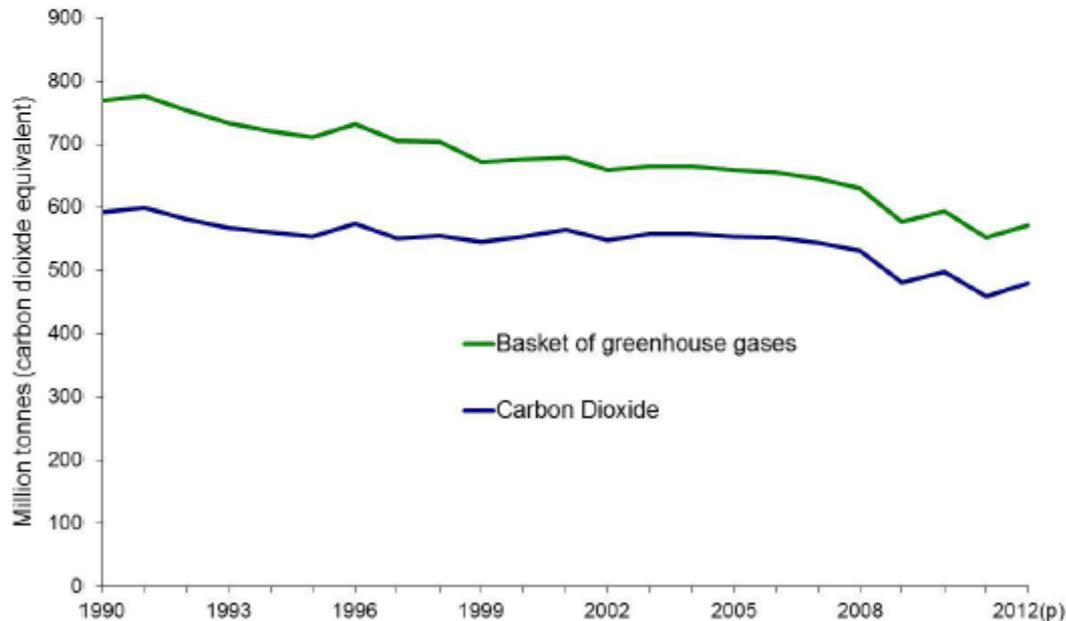
	2011	2012(p)	Change
Total greenhouse gas emissions	552.6	571.6	+3.5%
Carbon dioxide emissions	458.6	479.1	+4.5%

(p) 2012 estimates are provisional

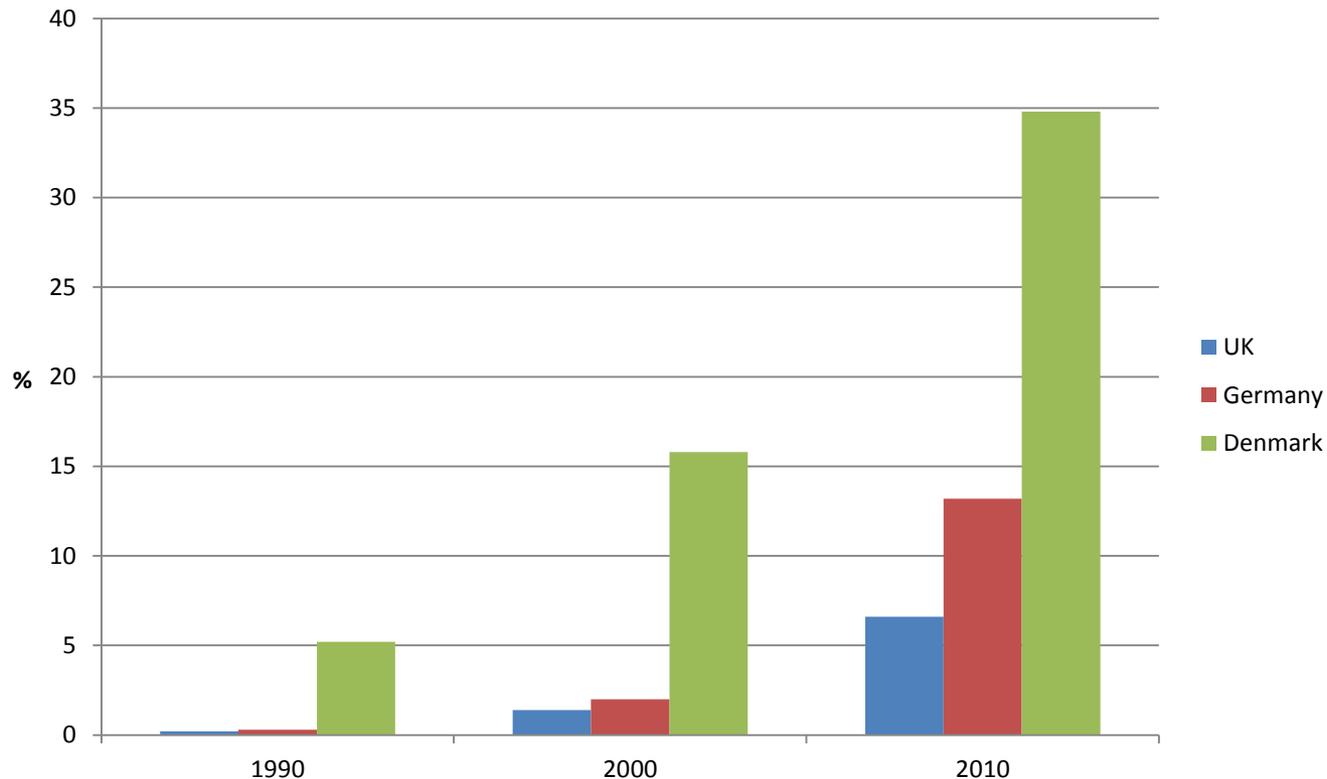
Carbon dioxide emissions figures are for the UK and Crown Dependencies; Total greenhouse gas emissions figures also include some Overseas Territories.

Emissions are reported as *net* emissions, to include removals from the atmosphere by carbon sinks.

Figure 1: Emissions of greenhouse gases, 1990-2012 (provisional)



Generation of electricity from renewable sources, excluding hydropower 1990-2010



Note: Denmark 1990 data is for 1994

Sources: UK – DECC (2012) UK Renewable Energy in Brief, 34

<http://www.decc.gov.uk/assets/decc/11/stats/publications/energy-in-brief/5942-uk-energy-in-brief-2012.pdf>; Germany – BMU, BEE, AGEB; Denmark – Danish Energy Agency, http://www.ens.dk/en-US/Info/FactsAndFigures/Energy_statistics_and_indicators/Annual%20Statistics/Sider/Forside.aspx

Socio-technical Transitions

- Energy systems as established and changing inter-relationships between areas – corporate, government, civil society, infrastructures, technologies
- Structures matter – systems co-evolve but can also be destabilised (punctuated evolution)
- Transitions as profound change in how systems operate – implying new winners and losers
- ‘Socio-technical’ focus highlights inter-linkages between governance and outcomes for energy system transition
- Governance intervention as essential to unprecedented energy transition – managed transition (Scrase and Smith 2009; Fouquet 2010; Meadowcroft 2011; Markard et al 2012)

Critique of STT approach

- Lacks good account of politics of transition - especially important for managed transitions
- Presents visions of a low carbon energy future as accepted and as relatively uncontested
- Low carbon energy policies often proscribed without considering how they relate to wider political contexts
 - i.e. ‘Transitions management’ recommendations – underestimated existing institutions and how these altered processes of change in the Netherlands (Kemp et al 2007, Kern and Howlett 2009, Smith and Kern 2009)
- ‘Appreciative theory’ (Geels, cf. Nelson) good for case studies, but breadth means little comparative explanatory power:
 - little hierarchy and structure in account of landscape/regime/niche interactions - problematic for conventional policy makers who seek priorities

'New institutionalism' as complementary (alternative?) framework?

- Offers us account of politics and change:
 - Accounts of politics that incorporate not only institutions, but also interests, power, ideas and path-dependence
 - Explanations of why path dependencies exist as well as type
 - Explanations how and why change takes place and *type* of change (ideas and narratives – Blyth 2002; Hay 1999; Schmidt 2008)
 - Usually used for economic/monetary policy but can be applied to energy (Kern 2011; Kuzemko 2013)
- Primary focus on political and institutional change – how and why certain forms of change occur and with what outcomes for energy systems, markets, technology etc...
- Focus on the differential *nature* of policy (ideas, objectives, instruments and institutions), rules and incentives which enable, constrain and channel actors, practices and change

Framework for Comparison

- Models of capitalism approach (Schmidt 2002; Crouch 2005) that builds on Hall and Soskice's (2001) CME/LME approach
- Importance of ideas (policy paradigms) to the design of institutional systems and how such systems operate (communicate and coordinate)
- Include historical understanding of how energy policy has evolved within different countries and with what outcomes for transition – especially as policy constantly changing
- Aware of critiques of VoC/MoC:
 - variation across sectors within economies (Crouch 2005),
 - and across dimensions (e.g. corporate governance vs. role of state in finance)
 - ...but still useful heuristic in ideal types version

Comparative institutionalism and energy transition

- Countries have designed energy/climate institutions differently – but what effect does this have?
- Recent studies
 - Mikler and Harrison (2012): CMEs will do electric vehicles better because their states and firms can *coordinate* around social goals better
 - Kern (2011): new institutions for low carbon innovation (ET in Holland vs. CT in UK) took forms influenced by existing institutional systems
 - Lachapelle and Paterson (2013): CME's have reduced emissions by a significantly larger amount than LME's since 1990. Contrast explains half of variance in emissions change
- Explore deeper and ask more 'why' questions... i.e. explain how and why different policy paradigms (institutions, ideas, objectives, policies) shape inter-relations between government, industry, publics toward different energy system outcomes
- Pitfall in institutionalist approaches of 'theoretical conjectures without foundational mechanisms' (Radaelli et al 2012)

CMEs have significantly deeper emissions cuts than LMEs

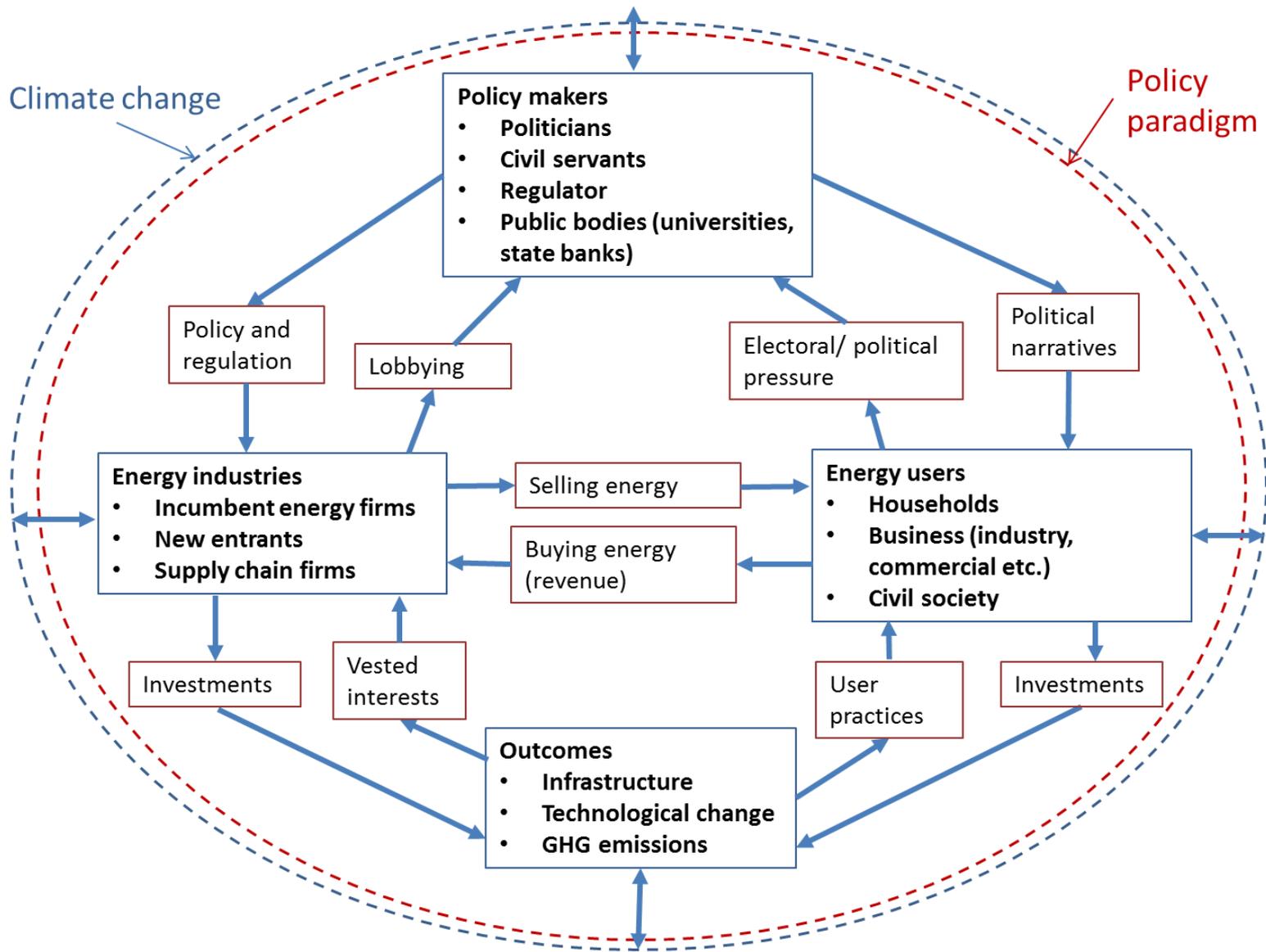
	Emissions change pre-Kyoto (1990-1997)		Emissions change post-Kyoto (1997-2008)	
	(5)	(6)	(7)	(8)
LME	-32.356** (9.934)	-23.293* (9.610)	-31.402** (10.714)	-22.167** (7.211)
CME	-40.630*** (8.603)	-26.104* (9.662)	-42.137*** (9.278)	-21.077** (7.213)
GDP growth (average)		4.124* (1.656)		9.308*** (1.725)
_cons	46.172*** (7.024)	24.014* (10.897)	40.018*** (7.576)	-2.629 (9.327)
<i>N</i>	24	24	24	24
adj. <i>R</i> ²	0.474	0.578	0.449	0.765

Table 4: OLS regression results: heaviest emitters and type of capitalism

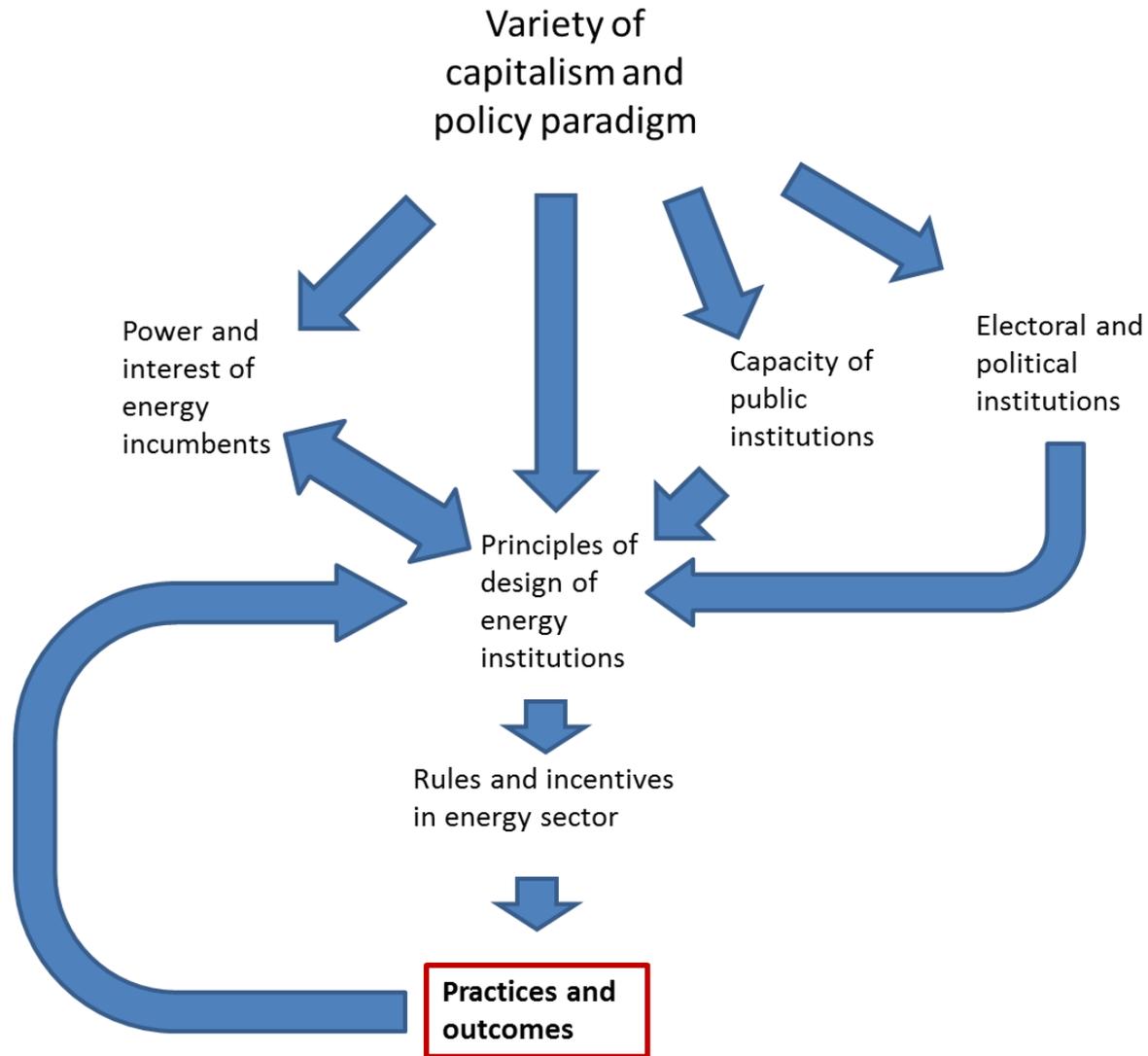
Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Lachapelle and Paterson 2013



Sustainable energy transition: four routes of interconnection



Routes of Interconnection 1 (UK Policy Paradigm)

- Institutional design:
 - Ideological commitment to market-led policies can increase policy costs (e.g. RO vs FiT, Green Deal)
 - Minimises state role in support to innovation
 - Short term costs/economic efficiency dominates decision making over environmental ideas and marginalist world-view works against strong coordination for non-marginal change
- Institutional capacity:
 - Hollowing out of technical/energy knowledge in government and increases reliance on secondees from incumbents
 - Emphasis on policy delegation to arms length regulator
 - Less capacity to support a 'mission-oriented' innovation policy /entrepreneurial state/industrial policy

Routes of Interconnection 2 (UK paradigm)

- Corporate-state relations:
 - “Shareholder value” model with short-term expectations on profits/dividends, works against longer term view and social goals
 - Market concentration and large powerful incumbents who coordinate to further strengthen barriers to entry, all of which suppresses innovation
 - System operator and network functions privatised, absorbing disruptive/new technologies (e.g. variable renewables) = more difficult
- Electoral politics:
 - LMEs more likely to attempt depoliticisation of energy/climate policy rather than seek explicit political consensus, which is more sustainable under transition pressures
 - Exacerbated by Schmidt’s decision making at centre and then communicated once decided
 - CMEs tended to have PR systems, working for greater Green Party presence and leverage
 - LMEs have greater inequality and less welfare, so energy costs in transition politically more difficult

UK (LME) vs. Germany and Denmark (CMEs)

- Working hypothesis = UK less successful at transition because:
 - Pro-market paradigm limits and distorts policy design directly: i.e. UK policy institutions designed to ensure competition not transition
 - State capacity for long-term energy direction hollowed out
 - ‘Deep’ liberalisation has allowed market concentration and powerful incumbents, with interests in opposing change where costs/risk involved, strong grip on policy, esp. preventing entry
 - UK electoral system gives less leverage to green voice
 - Higher inequality in UK makes transition costs politically more difficult
 - UK unwilling and unable to pursue effective “mission-oriented” innovation and industrial policies
 - UK finds coordinative institutions difficult (KfW vs. Green Investment Bank)

Limits/weaknesses

- VoC/MoC analysis good at national political economy institutions (corporate governance, finance, labour markets etc.), but misses out other comparative institutional contrasts that look important for UK vs. Germany/Denmark, especially role of municipal government, history of cooperatives/community groups
- Comparative institutionalist approach to energy sector doesn't explain factors such as military nuclear and availability of indigenous resources (e.g. coal) which also shape relationship between governance and innovation (and types of innovation)
- Work towards a framework that is sector as well as country focused – i.e. compare varieties of energy policy paradigm?

Energy-Climate Europeanisation?

- Focus so far is at comparative country level, but what interactions with the EU policy level?
- EU policy has been changing but internal contradictions:
 - interconnection between countries and liberalisation of Continental markets (Energy Packages and Competition Commission)
 - climate change mitigation: renewables, efficiency (DG Climate)
 - energy security: includes ‘solidarity’ and power games with Russia (DG Energy)
- EU-Country interactions:
 - Lisbon Treaty Articles on energy allow for the sovereign right to decide on sources and general structure of energy supply as well as conditions for exploiting energy resources – undermines integration?
 - Country-level decisions (i.e. UK to pursue nuclear) contradict EU level rulings (i.e. on state support/subsidies) – many clear examples but little resolution thus far
- Further attempts now to effect i.e. how renewable energy is supported by moving away from FiTs but not regulatory requirement

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MARCH 11, 2013

New Thinking Blog: The New Energy System is Winning the Fight for the Future



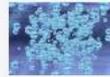
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About IGov

IGov aims to explain the nature of change towards a sustainable energy system, focusing on the complex inter-relationships between governance and innovation. We will be examining institutions and practices through the lens of theories of change, with the aim of developing a framework for governance that better enables a faster transition to sustainable, secure and affordable energy in the UK.

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