Current Challenges to Energy Markets: Institutions, Contestations and Contingent Change

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Energy Markets in Historical Context

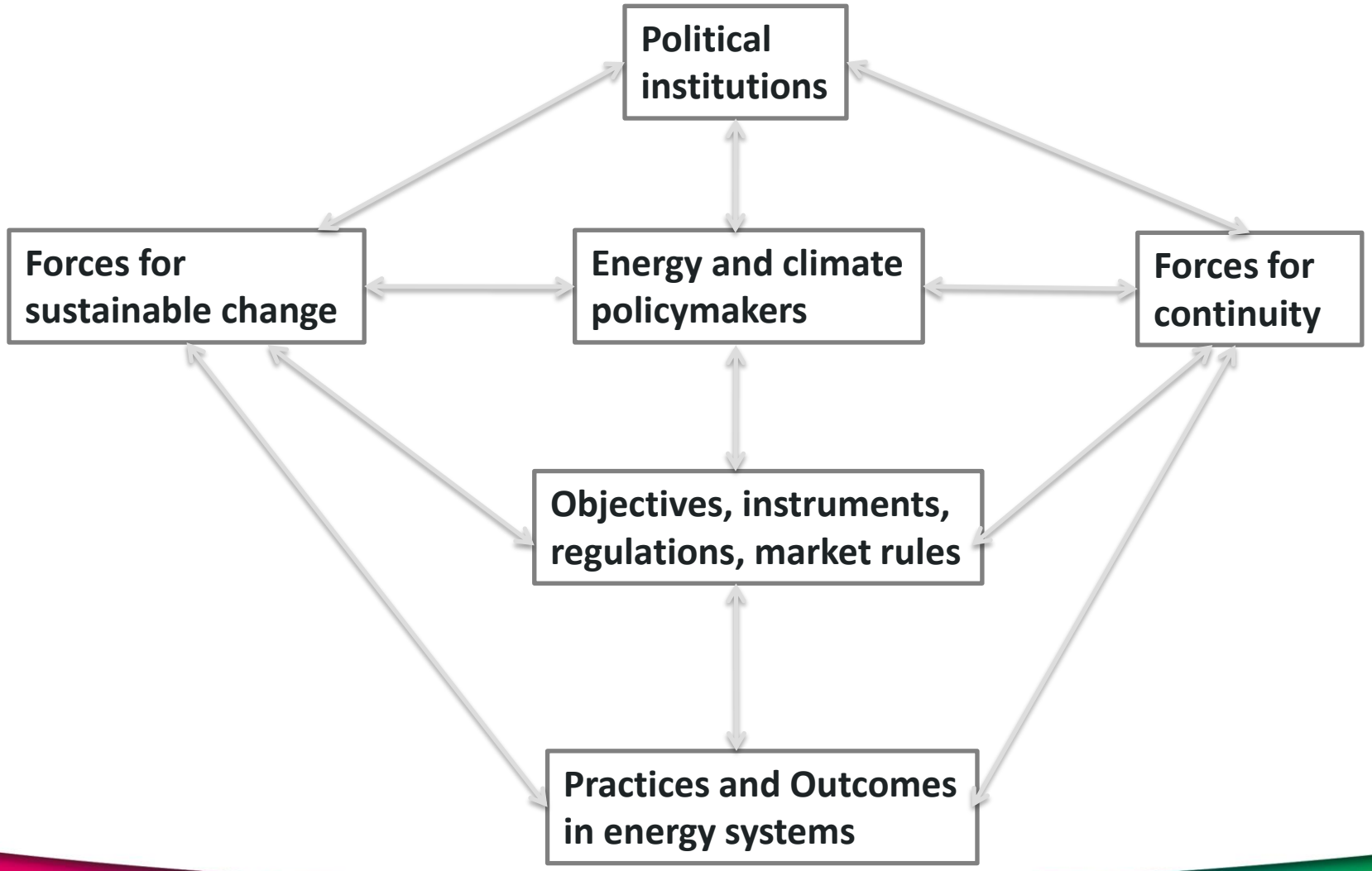
- Energy markets, **based on fossil fuels**, designed to deliver secure and affordable energy
- Often nationalised/centralised, supply-oriented
- Political economy of energy:
  - Often deeply embedded politically: economic power (exports, taxes, jobs), formal and informal influence
  - Often subject to specific rules (Seven Sisters/US; Russia re-nationalisation; nuclear/UK)
  - Often subject to broader economic rules
- 1970s crises: some countries response to oil shocks > efficiency/renewables
- Increasingly liberalised and privatised (financialised): designed to allow for private profits

Challenge: Sustainable Energy (Innovations)

- Sustainable energy: secure, affordable and *environmentally sustainable energy:* non-fossil fuel and lower/flexible demand
- *Problem Drivers:*
  - Climate change/smog, environmental damage, (in-security)
- Solution Drivers:
  - Targets: emissions, renewables, efficiency, (home grown)
  - New technologies: smart/IT, renewable, responsive
  - New models: local, aggregators, sustainable finance
- Responses to challenge differ – often hierarchies between which objectives are more important
- High degrees of governance change do not necessarily lead to sustainable energy outcomes – 'lock-in'

Theorising Governance for Innovation

- Energy governance as highly complex and *contingent*:
  - Political institutions vary, *as does energy within p.e.*
  - Inter-related to other policy areas: fiscal, welfare, jobs
  - Multiple objectives, hierarchies and *levels of governance*
  - *Differential capacities for agency and change*
- Roles of energy governance (maintain & respond):
  - Deliver trilemma and economic objectives
  - To enable innovations (clean energy, demand, social)
  - To distribute benefits of technical innovations and *ease the process of change (welfare) – 'just transition'*
  - *Mediate in debate between forces for sustainable transformation and forces for continuity: winners/losers*
- *Governance can also constrain types of change*


Political institutions
Forces for sustainable change
Energy and climate policymakers
Forces for continuity
Objectives, instruments, regulations, market rules
Practices and Outcomes in energy systems

Political Institutions: Energy in Context

- Germany:
  - Proportional representation (*strong anti-nuclear/Green*)
  - Power devolved locally and no post-war energy nationalisation (municipal energy/services)
  - Coal interests, importer of oil/gas: emphasis on renewables
  - Governance: goal oriented, coordinate/enable and strong welfare and jobs commitment
- UK:
  - Post-war nationalisation: *centralised* energy and government
  - Oil/Gas: importance in revenue and employment terms; Nuclear military complex – less emphasis on renewables
  - Liberalisation and financialisation: private interests and lock-in, policymaking knowledge gaps
  - Treasury involved in energy policy (austerity)
  - Governance to incentivise but markets to lead change

Terms of the Debate: Sustainable Change

- Germany – forces for sustainable change:
  - Climate change main driver at Federal (some Land) level
  - Strong Green influence: nuclear ruled out of supply mix
  - Aim to lead, develop clean energy markets and knowledge
  - **Continuity**: international competitiveness/high prices, coal as important (jobs), traditional electricity companies: supply capacity (capacity markets?)
- UK – forces for sustainable change:
  - Climate change (Stern on economic cost act now/later)
  - Affordability (energy poverty) recognised as a problem
  - **Continuity**: supply security - UK becomes importer oil/gas: 'home grown'; Treasury and 'Big 6' influential (formal procedures); nuclear as 'clean'/domestic; oil and gas as economically important

Mediation between Forces/Outcomes

- Germany Governance (forces for change):
  - Renewables 25% electricity: target 60% consumption; negative wholesale prices; DE ‘revolution’; coalition for continuity/court
  - New energy interests embedded: employment, revenue/exports, consultancy; lead in new technologies/knowledge; lobby
  - Incumbent energy companies facing hard choices: wholesale price
  - Coal and intensive users sheltered from costs/change: distributional issues now/high energy prices – adapting EEG
- UK Governance (forces for continuity/mixed signals):
  - Renewables 18% electricity consumption, less distributed: policies (except solar FiT) suited large companies; Treasury: CCL
  - Incumbent lobby strong, actively involved in regulation
  - Conditions for non-renewable generation more favourable: Capacity Markets, CCS, generous CfDs for nuclear, scale/codes
  - Vulnerable consumers pay more/Winter Deaths/high prices but less change; little public debate/informed deliberation

Conclusions/Questions

- Institutions/contingencies important:
  - Explanation of variety, in governance but also *outcomes*
  - TYPE of national energy system change results from political processes of compromise between forces for sustainable change and continuity – therefore need to understand institutional (historical context) as well as how politics mediates, enables and constrains change
  - Where do energy systems (oil, gas, coal, electricity) fit within political economy of country – what roles?
- But what do contingencies tell us – and can institutional constraints be overcome? Or are they important to understand in order to overcome?
- New technologies dispersed = new problems for traditional energy and new path dependencies

Objectives, Policies, Regulations

- Germany:
  - Long-term and ambitious targets inc. renews/efficiency
  - Energiewende: nuclear phase out (targets)
  - EEG: focus on new market entrants and adapt over time
  - Sustainable banking to finance innovations (KfW/Landesb.)
  - Considering capacity market and coal phase out
- UK:
  - Objectives: climate not more important than security/econ.s and targets focused on emissions (not renewables)
  - Capacity Market: supports gas/coal generation (security)
  - Contracts for Difference: £90/MWh nuclear (25 years)
  - Support for shale gas and North Sea oil and gas
  - Climate Change Levy (Treasury) caps spend on energy