IMPS IN THE ANTHROPOCENE

Conceptualising Germany's Energy Transition

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Introduction

- **Governability challenges of global change:**
  - ➢ Interdependencies of land, water, energy, food, …
  - ➢ Global reach vs. spatial embeddedness
  - ➢ Temporal asymmetries between climate change and human responses
  - ➢ Limitations of state, market, community
  - ➢ Commodification of human-environment relations
  - ➢ Dystopian discourses and authoritarian solutions
  - ➢ ……

- **Germany's *Energiewende* in the anthropocene:**
  - ➢ Nuclear exit; decarbonising power generation; expansion of renewables
  - ➢ Reconfiguring energy governance: broader actor constellation, embattled incumbents, prosumers, community energy, energy democracy, …
  - ➢ Concurrent backlash over governability of 'populist' *Energiewende*: reforms of EEG setting upper limits for renewables, prescribing marketisation, strengthening central state interventions for grid expansion, …

Introduction

- **Research on *Energiewende* under-theorised:**
  - ➢ Early research heavily descriptive: case studies, best practices
  - ➢ Predominant normativity to much scholarship (pro <u>and</u> contra)
  - ➢ Little engagement with scholarly concepts on human-environment relations

- **Rationale for our book:**
  - ➢ Conceptual debates in human geography, political ecology, science and technology studies, institutionalisms offer valuable ways of interpreting *Energiewende*
    - ➢ Not about filling research 'gap', but gaining new insight on empirical phenomena through lens of diverse theories / concepts
  - ➢ Target key dimensions of human-environment relations:
    - ➢ I: Institutions
    - ➢ M: Materiality
    - ➢ P: Power
    - ➢ S: Space

Methodology

- **Selection of theoretical approaches:**
  - Long-list of 22 theoretical approaches in recent literatures
    - Documented in profiles of each, covering: key works and authors, epistemological roots, empirical applications, relevance for understanding institutions, materiality, power and/or space
  - Short-list of 2-3 approaches for each IMPS dimension
    - Selection criteria: value in conceptualising at least one of the IMPS, strong reception in recent research, complementarity within each cluster, potential applicability to energy transitions, interest of research team, compatibility with IRS research programme

- **Researching and writing:**
  - Work on each book chapter in author teams (2-3)
    - Interpreting and comparing theoretical approaches of each cluster according to common template
    - Use of empirical illustrations from *Energiewende* to test value of each approach (drawn from focus groups)
  - Continuous critical reflection in whole group (7)
  - Writing up as 4 core chapters, framed by introduction, context-setting chapter and concluding synthesis

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Institutional change

- **Energy Transitions and Institutional Change: Between Structure and Agency**
  - ➢ 3 approaches selected:
    1. Historical institutionalism:
       - ➢ Feedback mechanisms in reproduction of institutions; path creation and stabilisation through agency
       - ➢ Key texts: Hall and Taylor 1996; Garud et al. 2010
    2. Discursive institutionalism:
       - ➢ Role of storylines, ideas, meaning contexts in processes of institutionalisation / de-institutionalisation
       - ➢ Key texts: Schmidt 2010; 2011
    3. Strategic-relational approach:
       - ➢ Strategic selectivity of new or existing institutional structures and (diverse) capabilities of actors to exploit these
       - ➢ Key texts: Jessop 2010; Sum and Jessop 2013

Institutional change

	Historical institutionalism	Discursive institutionalism	Strategic-relational approach
Link to transition research	Embedded relationship of agency and institutions over time	Construction of meaning and strategies	Possibilities of systemic change
Understanding of institutions	Formal and informal rules, shaped by path dependency and um/intended consequences	Institutional contexts and internalised institutions	Site of conflict in institutional ensembles
Relationship of structure and agency	Agency reinforces institutions; institutions shape, but do not fully determine agency	Constructed structures and communicative agency	Dialectic between situated agency and structural selectivity
Contribution to transition research	Understand opportunities and limitations for agency in relation to path dependency and path creation	Understand how actors argue, formulate targets and form discursive coalitions	Understand which actors can change what kind of structure and how selective structures impede transitions

Institutional change

- **Empirical illustration: Referendum to remunicipalise Hamburg's gas, electricity and district heating networks, 2013**
  1. Historical institutionalism:
     - Explain referendum in terms of challenge to path-dependent structures through 'mindful deviation' by opponents, and their subsequent attempts to create new path by designing future 'increasing returns'
  2. Discursive institutionalism:
     - Decipher actors' strategies, mindsets and related agency and how these changed meaning contexts (local and beyond) in course of referendum campaign
  3. Strategic-relational approach:
     - Explore how far referendum has changed 'strategic context' of city's energy policy – i.e. what new structures emerged, how this affected actors' positions / strategies and what this implies for institutional ensemble

Materiality

- **Energy Transitions and Materiality: Between Dispositives, Assemblages and Metabolisms**
  - ➢ 3 approaches selected:
    1. Dispositives:
       - ➢ Socio-technical arrangements with a strategic function; 'productive' power of dispositives through material objectifications and institutionalisations
       - ➢ Key texts: Foucault 1978; Agamben 2008
    2. Assemblages:
       - ➢ Socio-material configurations that develop agency through interaction of different components in continuous processes of assembling, disassembling, reassembling; 'vital materialism'
       - ➢ Key texts: Deleuze and Guattari 1992; DeLanda 2006; Bennett 2010
    3. Metabolisms:
       - ➢ Socio-natural flows mobilised to (re)produce social power relations; political economy framing: critique of capitalist realities
       - ➢ Key texts: Swyngedouw and Heynen 2003; Heynen et al. 2006; Heynen 2013

Materiality

- **Empirical illustration: Project for biogas plant fed with waste from mass poultry farm in Gumtow, Prignitz**

  1. Dispositive perspective:
     - Study project as materialisation / objectification of two dispositives: a) *Energiewende*, with its laws, disourses and moral propositions framing agriculture as relevant for renewable power and b) agro-industrial complex, with its ownership regulations and discursive practices for exploitation of natural resources

  2. Assemblage perspective:
     - Study project as attempt to bring heterogeneous elements (chicken waste, local development, factory owner etc) into alignment in face of 'uncooperative' material and human actors

  3. Metabolism perspective:
     - Study project as interest-driven attempt to reconfigure flows of matter, capital and energy and its implications for reproducing unequal power relations and uneven spatial development

Power

- **Energy Transitions and Power: Between Governmentality and Depoliticisation**
  - ➢ 2 approaches selected:
    1. Governmentality:
       - ➢ Non-actor-based concept of power: how power gets collectively produced and inscribed in socio-technical ensembles, governing at a distance via 'technologies of power' and 'technologies of the self' (self-governance)
       - ➢ Key texts: Foucault 2009; Miller and Rose 2008; Dean 2010
    2. Depoliticisation:
       - ➢ Actor-based concept of power: how and why issues get politicised and depoliticised by actors to confine or enlarge scope of 'the possible' – i.e. what can be imagined or discussed and what cannot
       - ➢ Key texts: Hay 2007; Flinders and Wood 2014

Power

Empirical illustration: wind energy development in Brandenburg

Dimension of depoliticisation	Link to governmentality	Empirical illustration
Governmental depoliticisation (Delegation)	Technologies of government	Regional planning as technocratic designation of wind areas perceived as intransparent; technologies of government of regional planning
Societal depoliticisation (Privatisation)	Both technologies of government and subjectivations	Self-governance of wind power developers and powerful landowners as profit-seeking entrepreneurs benefiting from favourable technologies of government in energy sector
Discursive depoliticisation (Denial)	Subjectivations	No discourse on development path; Prignitz portrayed as ‚winner region'
Repoliticisation	Resistance (as a special form of subjectivation)	Local action groups against wind energy development; energy cooperatives

Space

- **Towards a Socio-Material and Political Geography of Energy Transitions**
  - 3-tier literature review:
    1. The 'spatial turn' in recent socio-technical research:
       - Co-evolutionary understanding of cities and infrastructures; relational understanding of city as multiple entity; political nature of city-infrastructure relations
       - Key texts: Coutard 1999; Graham and Marvin 2001; Bulkeley et al. 2011
    2. Spatial perspectives on energy transitions:
       - Drawn from human geography, political science and planning studies
       - Emergent emblematic themes:
         1. Production of space and uneven spatial development of energy transitions (e.g. 'winner' and 'loser' regions of transitions)
         2. Rescaling of governance and scalar interplay in energy sector (e.g. interplay between local energy conflicts, national energy policies and global utility interests)
         3. Spatial materiality of energy transitions (e.g. energy landscapes)
       - Key texts: Bridge et al. 2012; Betsill and Bulkeley 2007; Strachen and Lal 2004

Space

3. Spatial dimensions of institutions, materiality and power:
    - ➢ Revisited literatures to see how following approaches address space: dispositives & governmentality, assemblages, urban metabolisms/UPE, strategic-relational approach
    1. Production of space: All approaches share understanding that spatial structures co-produced with social relations/interactions
        - Production of space integral factor of power relations (Foucault)
        - Place-specific 'geographies of association' central to processes of assembling
    2. Scalar governance:
        - Scale is key mode of structuration for strategic-relational approach and medium of power relations for UPE
        - Assemblage research eschews preconceived scalar structures
    3. Spatial materiality:
        - Characteristic of many dispositives, embodied in urban design or technologies
        - An actant (not just geographical context) from assemblage perspective
        - A product of social and material co-production of (urban) metabolisms from UPE perspective

Nexus dimensions

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Transformations of
Human-Environment Systems

Looking across the IMPS ....

Institutional change
- Path dependency and path creation
- Discourses and meaning contexts of institutions
- Strategic selectivity of structure and agency

Materiality
- Vital materialism of objects and things
- Role of objects in power geometries
- Dispositives: Subjectivations and objectifications

Power
- Actor-based strategies of depoliticization
- Productive power: governing at a distance

Space
- Production of space and uneven development
- Rescaling of governance
- Spatial materialities

Examples:

Institutional change and materiality: How 'things' (e.g. power grid) get institutionalised in energy transitions / How institutional arrangements (e.g. feed-in tariff) get materialised

Institutional change and power: What kinds of power relevant for institutional change: actor-based strategies of change or resistance vs. productive power of dispositives and their governmentalities
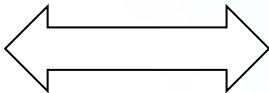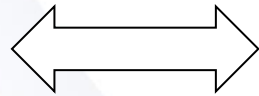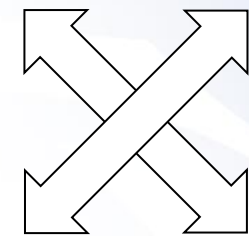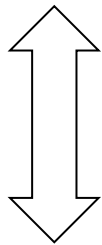
Institutional change and space: How new spatial constructs (e.g. bioenergy regions) emerge through formative role of institutions (e.g. laws, contracts, worldviews) / How path dependency of energy institutions is rooted in spatial embeddedness

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Ways forward

Purpose of Book: Provide conceptual guidance for future empirical research on energy transitions, in Germany and beyond

➢ Outlining conceptual approaches, not developing them further
➢ Illustrating empirical applications, not testing them with in-depth case studies
➢ Currently being applied in empirical research at IRS

Using the IMPS analytical framework

➢ Designed as set of options, not blueprint for universal application
➢ Enables selective use, according to research topic / interest
➢ Suggest different combinations of approaches
➢ However, some combinations not feasible / advisable owing to incompatibilities of scope, ontologies or epistemologies

Aspiration: Inspire more nuanced and robust analyses of the *Energiewende* as prominent attempt to reconfigure human-environment relations