

# Actors, governance & realising transitions: insights from history

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# Four key studies

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- a) Alternative liquid fuels in the UK in the inter-war period (1918-1938): Insights from a failed energy transition (Johnson, Sherry-Brennan & Pearson, 2016. *EIST*)
- b) Spatial governance and energy transitions: The ‘problem’ of rural electrification in England and Wales (Sherry-Brennan & Pearson, 2015, RTP WP; journal in prep.)
- c) Past management of energy demand: the promotion and adoption of electric heating in Britain 1945-1964. (Carlsson-Hislop, 2016. *Environment and History* )
- d) UK natural gas system integration in the making, 1960–2010: complexity, transitional uncertainties and uncertain transitions (Arapostathis, Foxon & Pearson, 2014. *EIST*)

# Why study energy histories?

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- ❑ Studies of historical energy & infrastructure transitions have helped understand the dynamics & timing of transitions.
- ❑ While most attention has been paid to transition successes, belated attention now being paid to transition failures & resistance to change by incumbent firms & their fuels, technologies & institutions.
- ❑ Historical case studies also help illustrate possibility of radical or rapid transformation; & question received wisdom about past successes/failures of socio-technical transitions, policies & technologies.
- ❑ The value of historical case studies as analogues lies not in their perfect 'fit' with modern technologies or circumstances (unlikely), but in being similar in one or more aspects.

# Outline of analytical approach in alternative fuels study

- Builds on RTP 'governance logics action-space framework'.
- Interactions in the action space vary with circumstances & actor agency; & logics modify.
- When energy seen as 'insecure', it tends to be framed as a 'social service' rather than a commodity, with growing political legitimacy of policy interventions.
- Between WWI & WWII, shifting views about security affected framing of energy, the action space & policy legitimacy: hybrid governance prevailed
- Used relational approach to explore how/ why policy supports for fuels emerged & were finally withdrawn

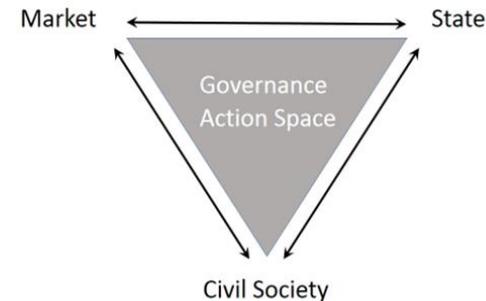


Fig. 1: The governance logics action space framework

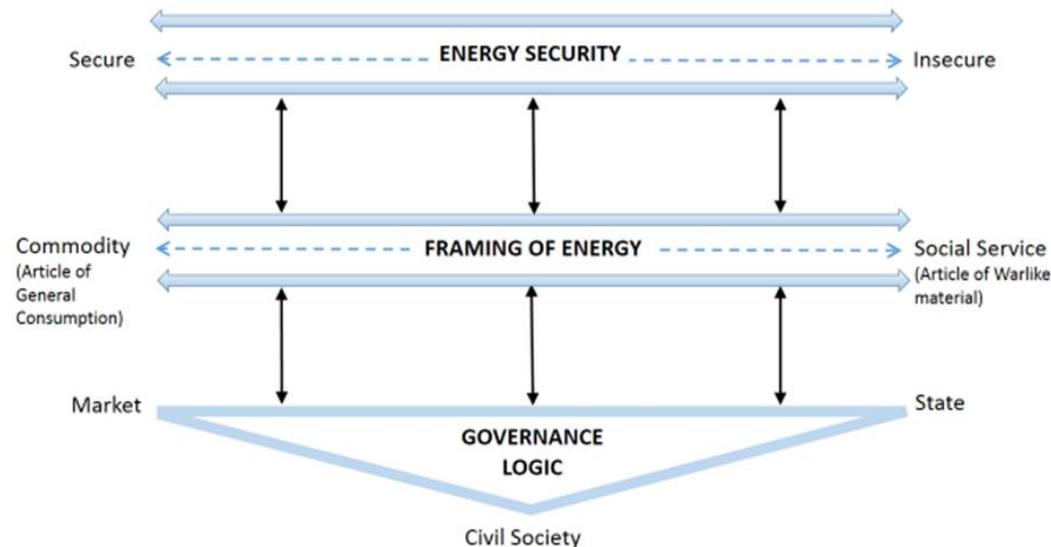


Fig. 2: Dynamic relationships between energy security, framing of energy & governance logics

Source: Johnson et al. (2016)

# Insights from history: Alternative fuels

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- ❑ Our study of two alternatives to petrol between WW1 & WWII shows how & why emerging technological substitutes can founder & transitions fail in times of economic instability, shifting hybrid governance & competition between incumbents (oil majors) & newcomers (DCL & ICI). Partial historical analogue for:
  - ❑ Situations where there has been increasing emphasis on the hybrid roles of state & market in energy governance (e.g. EMR);
  - ❑ Changing priorities within the trilemma of energy & climate policy objectives;
  - ❑ The introduction of technological substitutes and new infrastructures (electrifying transport & heat);
  - ❑ Concerns with how incumbent actors, technologies, infrastructures & institutions do or might either advance or constrain low carbon transitions.

# Insights: Rural Electrification (RE) in England & Wales

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- ❑ Our study of RE (1920s-1960s) traces the impact of state, market & technology governance logics & the pervasive influence of an urban-industrial model of electricity development. We show RE's heterogeneity & suggest that with growing interest in distributed generation, how 'rural' is constructed continues to matter. Partial analogue for:
  - ❑ Insights from this study about the dangers of a single dominant framing of electrification & assumptions of rural homogeneity
  - ❑ Are relevant in an era when we may see varied combinations of larger-scale generation and distributed generation that will interact with a smarter grid, as part of the low carbon transition (RTP Engine Room, 2015).

# Insights: the EDA, LCC & electric heating in post-war Britain

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- ❑ There is little historical work on demand reduction. Our study of the Electricity Development Association and domestic electric heating by the LCC suggests that their attempts had limited impacts on the trend of rising demand & illustrates the challenges facing demand reduction today.
  - ❑ Consistent with analyses that say that households' engagement with customer-facing elements of a smarter grid, such as smart meters or energy monitors, could be complex and uncertain (Hargreaves et al. 2012), especially with low trust in utilities.
  - ❑ Illustrates the kinds of processes, practices, interactions & modes of governance that need to be researched & taken into account if demand management/ energy efficiency are to succeed in containing energy use & GHGs & in enhancing the quality of people's lives.

# Insights: UK natural gas system integration, 1960–2010

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- ❑ Explored development of system in two transitions – (i) to natural gas with state governance logic; (ii) from 1987 privatisation & liberalisation shaped new materialities & organisational structures, with Ofgem, the Network Code, vertical integration via new control/ communication technologies & then internationalisation via interconnectors.
  - ❑ Showed how physical infrastructure was co-constructed & co-evolved with system's changing political & social components & actors.
  - ❑ System integration, international interconnections, complexity & uncertainty are key aspects of low carbon pathways.
  - ❑ Showed how history can 'matter' in transition pathways & how decisions can produce conditions & 'facts on the ground' & forms of temporal & spatial path dependence that can constrain &/or facilitate future developments.

# Insights/Lessons

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- ❑ Historical analyses/stories of past transitions help understand: how & why transitions succeeded/failed; how long they can take & why.
- ❑ They show that rapid change is possible but not necessarily frequent
- ❑ And may require both a recognition of the need to change, openness to experiment & a high degree of coordination (e.g. natural gas transition).
- ❑ They show how co-evolutionary & co-constructed are the material/ physical aspects with the social, political & institutional aspects.
- ❑ Policy makers tend to have little institutional memory of what has worked/ not worked – history offers valuable examples.

# Selected Publications

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- a) Johnson, V.C.A. Sherry-Brennan, F & Pearson, P.J.G (2016). Alternative liquid fuels in the UK in the inter-war period (1918-1938): Insights from a failed energy transition. *Environmental Innovation & Societal Transitions*.  
<http://dx.doi.org/10.1016/j.eist.2015.12.001>
- b) Sherry-Brennan, F. & Pearson, P.J.G. (2015). Spatial governance and energy transitions: The ‘problem’ of rural electrification in England and Wales. Realising Transition Pathways Working Paper 2015/2.  
[http://www.realisingtransitionpathways.org.uk/realisingtransitionpathways/publications/Working\\_papers\\_and\\_reports/RTP\\_Working\\_Paper\\_2015\\_2\\_Sherry-Brennan\\_x\\_Pearson.pdf](http://www.realisingtransitionpathways.org.uk/realisingtransitionpathways/publications/Working_papers_and_reports/RTP_Working_Paper_2015_2_Sherry-Brennan_x_Pearson.pdf)
- c) Carlsson-Hislop, A.(2016).Past management of energy demand: the promotion and adoption of electric heating in Britain 1945-1964. *Environment and History*, 22(1), 75-12.
- d) Arapostathis, S., Pearson, P.J.G. Foxon, T.J. (2014). UK natural gas system integration in the making, 1960–2010: complexity, transitional uncertainties and uncertain transitions. *Environmental Innovation & Societal Transitions*, 11, 87–102
- e) Pearson, P.J.G. (2016, in press). Energy Transitions. *New Palgrave Dictionary of Economics Online*.

# Other Work in progress

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- ❑ Peter Pearson & Stathis Arapostathis (2016), 'Two centuries of Innovation & transformation in the UK gas system & its networks: where next?' Journal paper in preparation.
- ❑ Stathis Arapostathis, Yiannis Fotopoulos, Peter Pearson, Tim Foxon (2015), 'Financial Crisis as a Branching Point in the Greek Energy System: Governing Uncertainties, Policies and Practices – the Case of Natural Gas.' IST Conference, SPRU, August. Journal paper in preparation, 2016.
- ❑ Yiannis Fotopoulos, Stathis Arapostathis, Peter Pearson, Tim Foxon (2016), 'Governing Visions, Networks and Uncertainties: Insights from the Natural Gas transition in Greece.' 1973-2015. International Workshop: *Does History Matter? Techno-sciences and their historically informed policies*. National and Kapodistrian University of Athens, January. Journal paper in preparation, 2016.