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Conflicting strategies towards sustainable heating at an urban junction of heat infrastructure and building standards



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HIGHLIGHTS

- Foregrounds likeliness of conflicts over strategies within sustainability transitions.
- District heating systems can be incommensurate with low energy building standards.
- Studies one such conflict in an urban context (Freiburg, Germany) in depth.
- Processes of urban planning can reveal frictions within and between infrastructures.
- Can such junctions as opportunities for re-negotiation of strategies be anticipated?

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ABSTRACT

Approaches to ‘sustainability transitions’ stress the possibility of aligning actors around a shared vision of the future, e.g. at the scale of a city. Empirical accounts reveal how difficult such coordination often is due to contradictory views involved. How can we better understand related processes of searching and negotiation? What does this mean for the organization of decision making processes regarding long-term infrastructural change?

We analyze a conflict which erupted in Freiburg, Germany when two strategies of reducing environmental impacts of space heating were to be applied in the Vauban ‘model district’: A) Efficient co-generation of heat and power (CHP) combined with district heating systems (DHS), and B) Reducing heat demand by low-energy designs and ambitious energy standards (‘passive house standard’). In order to understand the politics of infrastructure development, we unravel 1) enabling factors and driving forces of the conflict, 2) normative content of opposing viewpoints, 3) resources tapped into for settling the disagreement, and 4) the institutional setup of such decision making about energy policy priorities in the municipality.

We reflect on implications of such a perspective on how policies and how governance arrangements should ideally be shaped and take a brief outlook on further research needed.

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1. Introduction

The great challenges of climate change and the depletion of natural resources are strongly related to the ways in which energy is provided and consumed in contemporary societies. Accordingly, energy governance is concerned with shifting the system of energy provision and consumption towards a more sustainable configuration. To which extent such a shift can be managed by

intentional policy interventions, and what role local activities can play in fostering change within globally entrenched energy structures are still open questions.

Concepts of ‘sustainability transitions’ stress the alignment of actors around a shared vision of the future (Brown et al., 2013; Hess, 2014) as a means to coordinate change. This is believed to work also at the scale of a city, producing momentum of change in a locally defined infrastructural system (Frantzeskaki and Loorbach, 2010). At the same time, empirical accounts and conceptualizations of socio-technical change acknowledge that coordinating such processes is only partially possible, challenged by a multitude of priorities, perceptions and often contradictory views and therefore is necessarily conflict-laden. In reality, and

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particularly in democratic societies, the search for a shared orientation with regard to such complex systemic endeavors will necessarily remain a distributed and messy process which is in principle prone to mistakes and conflicts. How can such processes of searching, contestation and negotiation be better understood? What does this mean for the organization of decision making processes regarding long-term infrastructural change?

We set out to analyze a discussion process concerning two energy policy strategies aiming to reduce environmental and climate impacts of space heating in Freiburg, Germany. The first strategy aims at the efficient provision of heat from co-generation of heat and electricity in semi-centralized, combined heat-and-power (CHP) stations and distribution through district heating systems (DHS). The second strategy aims at a reduction of heat demand by developing highly energy efficient building designs and enforcing ambitious energy standards like the ‘passive house standard’ for new buildings. Both strategies are an inherent part of urban sustainability concepts. They have been rather uncontested and received support from politicians and civil society activists alike. Contentious debates around these issues only erupted in the mid 1990’s, when both strategies were applied at a larger scale in a newly developed urban district of Freiburg, the Vauban environmental ‘model district’ of Freiburg, and led to a clashing of interests and of different strategies for future heat supply infrastructures.

In this article we develop an understanding of urban infrastructure changes and politics of urban sustainability which puts more emphasis on such arenas of concern and their capacity to mediate transformation processes. We pursue this goal by first unraveling the driving forces of this emerging conflict as well as the normative content of the opposing viewpoints. Furthermore, we ask what factors were fostering the outbreak of the conflict and what resources actors tapped into in order to settle the disagreement. We are also interested in the institutional setup of such decision making about energy policy priorities in a municipality and the way municipal actors are able to deal with (and make use of) such instances where visions and strategies of sustainable development become problematic and negotiable again.

After critically engaging with some of the conceptual foundations of transition studies in the following section, we briefly describe our methods (Section 3) and devote the majority of this paper to the description (Section 4) and discussion (Section 5) of a process of public contestation and multi-lateral negotiations around the obligation to connect passive houses to a district heating network in the planned ‘model district of Vauban’ in Freiburg, Germany. In our conclusions (Section 6) we reflect on possibilities of policy making in this context and map out some pathways for future research.

2. How to understand the micro-politics of socio-technical transitions?

Today, the energy system is often conceptualized as a complex, socio-technical system comprising of material aspects (like infrastructures), institutional aspects (like laws, standards, tariffs etc.) and further societal norms and expectations (Grin et al., 2010). A well-known heuristic for explaining stability and change in such systems is the multi-level perspective (MLP) of socio-technical transitions, which distinguishes between niches, socio-technical regime and landscape as three levels of increasing ‘structuration’. This means that agency is located mostly in highly fluid niches, while the particularly long-lasting and more structural elements are attributed to the landscape level, and the regime is located at an intermediary level. MLP hence puts an emphasis on stability at the regime and landscape levels. According to this view,

transitions in regime configurations are often initiated by nurturing and protecting experimentation in socio-technical niches although finally interlinked changes at all three levels are required. An important strategy to manage change thus is the co-ordination of dispersed action via the creation of shared visions of a desirable (sustainable) future state of such regimes. The latter assumption has been at the basis of guidelines for the governance of sustainability transitions, which have been successfully promoted among academics and policy makers alike under the name of *transition management* (TM).

As a complement to this widely applied approach, we want to shift our attention also to processes of contestation and less structured and harmonious search processes at the regime level, e.g. with regard to infrastructural decisions on a city level that are of high relevance for an attempted transformation of the local energy system. We propose this shifting or broadening of our attention based on multiple observations of regime dynamics particularly in pluralistically organized urban contexts (omitted: references to own works). Such a perspective conceives of transition strategies not so much as the (participatory) identification and implementation of consensual transition pathways, but rather emphasizes the emergent and contentious character of such change processes.

We want to refine our conceptual tools for studying ongoing processes of sense-making and re-framing of problems and for analyzing social arenas where problems of change are interpreted and framed differently by different actor groups and where conflicting perspectives come to the fore. The notion of “*arena of development*” (Jorgensen and Sorensen, 1999; Valderrama and Jorgensen, Forthcoming) seems to provide a promising perspective that may well complement the traditional repertoire of the MLP which confines innovation largely to niche level developments and focuses our attention with regard to the regime level largely on consensual vision building activities:

Compared to the MLP the AoD approach downplays the consistency of rules and mechanism of the regimes level, as the introduction of regime level tensions and inconsistencies allows for studying situated actors political engagement in conflicts and sense-making dynamics through their performed interventions (Jorgensen, 2012: 1008).

So far, most analyzes of socio-technical transitions have studied the development of regimes at the level of national or global energy systems. Furthermore, they often isolated particular functions or infrastructures (e.g. the electricity system) or emphasized particular actor perspectives (in energy mostly the supply side, rarely the demand side).

This coincided with an often compartmentalized view of practitioners in policy making, separating ‘policy fields’ like mobility, housing, energy etc. or focusing their interventions even on sub-systems like the electricity system, a heat network etc. However, if studied in detail, and particularly from an urban perspective, these separate ‘systems’ are usually highly interconnected – be it technically, institutionally or organizationally. Recent empirical research indicates that cities are special sites for the re-configuration of socio-technical systems due to the fact that in cities the interplay of infrastructures, their supply and the demand sides and in general of policy fields and policy objectives is particularly conspicuous, in cases also better manageable, but very often more contested than on other levels (Coutard and Rutherford, 2010; Rutherford, 2013; Rohrer and Späth, 2014; Späth and Rohrer, 2012, 2014). This may result from proximities between actors, their limited number and the visibility of citizens which often represent conflicting interests (Hodson and Marvin, 2010; Monstadt, 2009).

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