



Experimenting with decentralized energy governance in China: The case of New Energy Demonstration City program



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ABSTRACT

A transition from a fossil fuel based energy system to a more sustainable energy system based more on renewables has been of increasing concern worldwide over the past decade. Such a transition has considerable spatial-physical and socioeconomic implications, suggesting area-based perspectives and related decentralized governance approaches as being crucial to complement, or partly replace, traditional centralized governance approaches. In response to implementation barriers to energy policies, China has also begun to experiment with more decentralized governance structures through the launch of national pilot programs. In the meantime, international studies have disputed the widely assumed benefits of decentralized approaches. Scholars have especially cautioned that decentralization needs to be informed about the degree to which local stakeholders are willing and able to cope with newly acquired responsibilities or tasks. This research investigates the willingness and ability of Chinese local authorities to perform tasks indicated in the pilot program 'New Energy Demonstration City (NEDC)'. This research, involving four case study cities and over 20 expert interviews, noted only modest willingness and ability. Local performance is constrained by inadequate local technical and managerial ability and a possible weak profile of renewable energy compared to other local priorities, and a limited local scope of influence over energy transition-related challenges as well decreased local willingness and ability. This research concludes that decentralization under energy policies should take place within a context of central support and stimuli, highlighting the importance of national policies and regulations to enable and activate local authorities and stakeholders in pursuing energy transition policies.

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1. Introduction

Energy transition has become a global political issue of some urgency and has attracted academic interest as a research subject in the fields of urban and environmental studies (Wassermann et al., 2015). An energy transition can be understood as a transformation of an energy system based on fossil fuels to one that is more efficient and is based on renewables. Such a transition is a highly dynamic, complex and multi-dimensional process in which one dominant socio-technical system transforms into another (Loorbach, 2007; Rotmans et al., 2001). This complex process is "not just a technological issue, but necessarily involves changes across the whole of a society" (Andrews-Speed, 2012, p. 63). More specifically, energy transition is a complex process that cannot be

understood within isolated policy sectors. A multitude of interrelated processes are involved, including technological innovations, economic interests, institutions, rules, behaviors, etc. (Verbong and Loorbach, 2012). Hence, an energy transition involves a multitude of societal and market parties, each claiming their place in the governance process. In the meantime, these stakeholders have their own interests, aims, perceptions, and preferences which are interrelated and may conflict with one another (Droege, 2011). Moreover, policy development and implementation manifest themselves differently in different places due to unique local circumstances and interests (Smil, 2008). Therefore, relying on a centralized mode of governing is problematic for managing energy systems as this approach has difficulty in responding to interrelations between energy systems and their physical and socioeconomic contexts in their unique local setting (de Boer and Zuidema, 2016). As a result, authors, such as de Boer and Zuidema (2015), have highlighted the necessity of area-based approaches to complement existing energy transition policies. In

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addition, authors, such as Kemp (2010) and van der Schoor and Scholtens (2015), have suggested that the planning and governance of energy transitions needs to embrace and foster the roles that local government, entrepreneurs and citizens can play.

Arguments that support area-based planning approaches are closely linked to policy arguments that support decentralization (Zuidema, 2016) which aim to shift power and responsibility from a national to a local level (De Vries, 2000). Proponents of decentralization have argued that it can increase government responsiveness and effectiveness to local (and more complex societal) issues (Faguet, 2012), while also enabling more productive policy delivery, due to their being a greater knowledge of local circumstances (i.e. needs, potentials and problems) (de Roo et al., 2012). As such, local authorities are thought to be better placed to balance various local interests, power and resources among local actors, market parties, and social organizations (Rumbach, 2016). These widely assumed benefits have placed decentralized approaches at the center stage of policy experiments over the recent decades (e.g., Agrawal and Gupta, 2005; Bulkeley and Castan Broto, 2013; Zuidema, 2016). However, decentralization can also have negative consequences (e.g., Flynn, 2000; Brinkerhoff and Azfar, 2010), for example, limited equity between local governments promoting undesirable competition (De Vries, 2000), free rider problems and increased local corruption (Rees and Hossain, 2010). Meanwhile, authors, for example Smoke (2015), have stated that decentralization can be risky, as decentralized units do not necessarily have the capacity and incentives to act as the theory predicts. As Zuidema and de Roo (2015, p.65) argued, “decentralization means that the outcomes of governance become increasingly dependent on local performance and therefore, of the available local willingness and ability to perform decentralized tasks and responsibilities.” Benefits of area-based approaches and a more decentralized governance approach to energy transitions cannot simply be assumed, but need careful studying. This is exactly what this article will do, by targeting one of the most crucial countries in which a global energy transition needs to take place: China.

China is committed to an energy transition towards a low-carbon economy by setting up various policies and targets. Implementation barriers (e.g., Wu et al., 2017) and the expectation of boosting local energy transition have spurred China to experiment with local energy policies with pilot projects, such as Eco-City and Low-Carbon City (18th CCCPC, 2013). These national pilot projects allow local authorities to develop and implement policies according to their specific local circumstances to bring collaborating and competing stakeholders together in a local bargaining network (Li and de Jong, 2017). Although not a replacement for existing central governmental policies and targets, these pilot projects are intended to stimulate local policy formulation. As such, they represent an institutional attempt to experiment with more decentralized practices within the Chinese centralized planning system. Inspired by the aforementioned doubts about decentralization, this article will investigate whether Chinese local authorities have the willingness and ability to develop and implement local energy policies.

Whilst contributing to our knowledge of the current development practices of Chinese energy policies, this article aims also to contribute to a wider debate on energy transitions and decentralized area-based working. Recent studies convincingly have showed the importance of studying energy transitions within their localized spatial contexts (de Waal and Stremke, 2014; Nadaï and van der Horst, 2010; Stoeglehner et al., 2011; Stremke, 2012; Zuidema and de Boer, 2017). The process and practices of the energy transition vary spatially due to the variety of stakeholders involved and the specific local circumstances (Faller, 2016). However, these studies have not explicitly addressed the role of more decentralized

energy policies, and therefore this article is contributing to relate energy transitions with decentralization in energy governance. Also, in China, the physical and socio-economic dependence of sustainable energy systems on the local landscape is barely even considered. If studies do address the local level, they have remained focused on the implementation of national policies in a local realm (e.g., Li et al., 2012; Liu et al., 2014; Yang and Li, 2013). Some studies have explicitly raised doubts about local performance (e.g., Khanna et al., 2014; Yu, 2014; Zhang et al., 2010). Nevertheless, these studies have not discussed precisely why local performance is poor, and they have hardly ever reflected on the possible role of the Chinese decentralized project-based approach (e.g., de Jong et al., 2016). As China works to engage more local energy policy development, this is not just an interesting empirical context for analyzing local willingness and ability, but is also relevant to develop Chinese energy policy. Hence, this article focuses on uncovering the potentials and pitfalls in relation to local willingness and ability to perform the most recent nationwide pilot program: ‘New Energy Demonstration City (NEDC)’.

Arguments for and against decentralization are discussed in Section 2 to inform the analytical lens used for the empirical study. Section 3 explains the methodology in which introduces the empirical context of the NEDC program and the cities and is where this article studies its impact in practice. Section 4 discusses the results, noting the modest degree of willingness and ability to develop and implement energy policies at the local level. The main conclusions are presented in Section 5, where this article discusses the role of central policies and incentives for stimulating and supporting local willingness and ability in the realm of energy governance.

2. Decentralization in energy governance

An energy system can be viewed as “a complex web of inter-related actors and networks, in physical, social, economic and institutional senses” (de Boer and Zuidema, 2016, p.174). Transforming such a system, thus, involves not only considerable physical and socio-economic changes, but also a multitude of actors and parties with different interests (Verbong and Loorbach, 2012). Relying only on centralized governance modes dictated by governmental decisions and regulations has been viewed as being insufficient (e.g., Pierre and Peters, 2000; Wu et al., 2017). Instead, an energy transition requires a process of governance in which governments, markets and civil society are all involved across various levels and sectors (Loorbach, 2010).

Presently, Chinese energy policies rely on a centralized approach based on regulatory instruments. This is not without its problems, including serious implementation deficiencies at a local level (e.g., Wu et al., 2017). Inspired by a need to rethink the current hierarchal policy system (e.g., Gilley, 2012), the Chinese central government have chosen to experiment with more decentralized approaches in pilot programs, such as the NEDC. The result is an increase in the inclusion of the local level in developing energy policies; this with the hope of boosting local policy development and area-based solutions. Scholars have pointed out that decentralization can produce more balanced, inclusive and tailor-made policy solutions that are able to respond effectively to interrelated and complex issues (e.g., De Vries, 2000; Mosley, 2009). Nevertheless, the actual outcomes of decentralization depend on local policy performance (e.g., De Vries, 2000; Werlin, 1992). As Zuidema (2016) suggested, local performance depends on local willingness and ability to take on decentralized tasks. Others have added to this that local willingness and ability cannot simply be assumed (e.g., De Vries, 2000; Flynn, 2000; Prud'homme, 1995). Instead, as, for example, Zuidema (2016) states, there are several key constraints to local

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