



Original research article

Energy transitions, sub-national government and regime flexibility: How has devolution in the United Kingdom affected renewable energy development?



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ABSTRACT

Amidst growing analytical interest in the spatial dimensions of sustainable energy transitions, relatively little attention has been given to the role of sub-national government, or the ways in which dominant socio-technical regimes for energy navigate diverse contexts. This paper addresses these two concerns by assessing the impacts of devolution within the UK on renewable energy development. It draws principally on policy networks analysis as the basis of a comparative assessment, examining how far the governments of Northern Ireland, Scotland and Wales have translated their formal powers in the energy sphere into renewable energy outcomes. Scotland's relative success in facilitating rapid expansion of on-shore wind is attributed to a more enduring and cohesive policy community around renewable energy growth than in Northern Ireland and Wales, but this success has been adversely affected by fragmenting policy networks around renewables at national (UK) level. The analysis highlights especially the role of planning and consenting, as mechanisms by which devolved governments have worked to contain the potentially disruptive effects of opposition to major infrastructure investments, thereby enhancing regime reproduction.

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1. Introduction

Forging more sustainable patterns of development is an intrinsically spatial task, in that broader patterns of change are shaped by actions at multiple sites and scales [1]. This is evidently true for the promotion of more sustainable forms of energy. Thus for example, the ability of the European Union to deliver on its targets of supplying 20% of energy from renewable sources by 2020 (2009/28/EC) and 27% by 2030 is shaped by the actions of member states and governments at other levels.

Since 2012, researchers have begun to engage more closely with the spatial dimensions of sustainability transitions [2], including in

the energy context [3]. The 'methodological nationalism' of much transitions literature, in which the nation state was adopted, uncritically as the main analytical unit, has been challenged [4–6] with researchers exploring the interface between energy, transitions, space and scale [2,7]. Nevertheless, there remain deficits in our understanding. Firstly, while there is burgeoning research focused on some arenas of action such as the interface between energy and cities, others have pointed to the dearth of critical attention to sustainability transitions at regional and sub-national government levels [8,9], with few analysts tracing causal relations between energy outcomes and the complex panoply of actions undertaken by these governmental tiers (though see [10–12]). Secondly, there is a need to consider whether actions in different places and arenas become constitutive of wider shifts in production or consumption ([2]; see also [11]); an agenda which requires more critical thinking about the spatial constitution of dominant regimes of energy provision – typically referred to as 'socio-technical regimes' – and

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the way in which these are organised across space, and become contextually embedded. These issues are connected, in that identifying how sub-national governments have engaged with energy – to refine, amplify, resist, or forge alternatives to wider, national norms – may illuminate how pathways towards more sustainable forms of energy provision might emerge, as well as how less sustainable forms persist.

In response to these concerns, this paper assesses the effects of devolution within the UK on the delivery of renewable electricity: wind, solar, biomass, hydro, wave and tidal power. It focuses primarily on the period from 1998, and compares renewable energy outcomes in Northern Ireland, Scotland and Wales, as well as England. The focus of the research is on renewable electricity generation, and emphasis is given to larger-scale facilities rather than micro-renewables, as this has been the dominant form of renewable energy investment in the UK through this period. The UK case is apposite for exploring the spatial dynamics of sustainability and energy transitions, in that 1998 saw the instigation of a major wave of political devolution that recast the spatial reach of 'national' energy policies promulgated by Westminster. While the UK situation has its own distinctive qualities (such as the persistence of relatively centralised government), the findings have relevance to other states with multi-level government structures like Germany [13] and Australia [14], where sub-national government have a potentially important role in fostering energy transitions.

Patterns of renewable energy development unfolding across the UK have been spatially uneven, suggesting that explanations of such outcomes can offer wider insights into how governance arrangements influence the differential prospects of energy transition [15]. Fig. 1 shows that for much of the first decade of the 21st century, Scotland could be considered a 'leader' in renewable energy in the UK, built mainly on rapid expansion of onshore wind power from 308 MW installed in 2003 to 5216 MW by 2013.¹ Renewable energy capacity in England only surpassed Scotland from 2011, relying more heavily on offshore wind, biomass co-firing in existing power plants and solar PV. Onshore wind has been the main technology deployed in Northern Ireland and Wales. When viewed in terms of capacity installed per capita of population or unit of GVA (Gross Value Added), then Scotland is again in the lead with all devolved territories displaying higher development rates than England (which has approximately 85% of the UK population; [16]).

Clearly then, the level of renewable energy developed in the territories of the devolved governments makes them critical to overall UK transition trajectories. However, given the complex arrangements of powers across the different tiers of government, one cannot infer that energy development *within* any particular sub-national government area can be attributed neatly and solely to action by that government. For causal explanations, one needs to consider the processes by which patterns of energy development are constructed and held together. Moreover, the expansion of renewable energy in quantitative terms does not tell us everything we may wish to know about transition. After all, renewable energy technologies can be deployed in diverse transition pathways, which may challenge prevailing social and economic arrangements or serve to reproduce the power of dominant actors [17,12].

To underpin our conception of agency, and provide a framework for four-way comparison, we utilise network-based explanations of policy formulation and implementation, especially policy network analysis [18]. This helps address a thematic concern for our analysis, to relate the formal powers notionally held by subnational governments (*power in potentia*) to their propensity and capacity to

use them (*power in actu*, after [19]). Recognition of the constructed nature of governance spatialities is provided by supportive insights from relational perspectives on space and scale.

The methodology for identifying policy networks and tracing causal effects draws on qualitative research, using two data sources, documents and semi-structured interviews. The documents analysed embrace government policy statements for energy and energy aspects of planning from across the four government territories, including correspondence between ministers and party manifestos, from the period 1998–2014. 80 interviews were conducted, with senior figures in government (at all scales, politicians and officers), energy companies and trade associations, but also non-governmental organisations and local planning authorities, between 2011 and 2013.² All the textual data was subjected to thematic coding (after [20]). In the analysis below, we present the causal effects and actor relationships revealed by the coding exercise, such that the quotations provided are both constitutive and illustrative of the arguments being made [21].

In sum, the aim of this paper is to explain the effects of devolved governments within the UK on renewable energy development. An important dimension of this is to evaluate why Scotland has been relatively successful, and reflect on the wider significance of this. In so doing, it responds to calls by Hansen and Coenen [2] for greater use of comparative analysis to understand better the causal factors driving sustainability transitions, including the need to understand how 'embedded norms and power affect policy choices, rules, regulations and outcomes' ([15], p. 98), and to throw light on the types of political and institutional conditions that make a shift to renewables more likely. The analysis also avoids an unthinking elision of 'transition' with 'technological innovation', to consider the role of subnational government in infrastructure implementation, which is an under-examined dimension of regime persistence or change. The theoretical position adopted is discussed in more detail in the next section, followed by an account of the intersections between devolution in the UK and energy governance. The way that the devolved governments have utilised two key policy instruments – financial support for renewable and land use planning – is then outlined and the development impacts assessed. Following this, policy networks analysis is used to explain the policy formulation and energy governance approaches of the devolved governments. The paper concludes by summarising key findings.

2. Understanding energy transitions

2.1. Spatial dimensions in the multi-level perspective

We take as our start point the 'multi-level perspective' (MLP) [22] on socio-technical transitions, though there is little need to elaborate its precepts here. A central concept is that of 'socio-technical regimes' which – as in the case of energy – characterise particular systems of provision and are embedded in economic processes, consumption practices, regulatory arrangements and infrastructure. These regimes are seen as 'dynamically stable' [23], sustaining and sustained by incumbent actors. Change may be triggered by 'niche' innovations, where they can coalesce and challenge the socio-technical regime. Opportunities for such challenges can arise from exogenous shifts in society, economy or politics – termed

² To preserve interviewee anonymity, we use a code system to identify specific interviews. 'Scot' means interviewee was based in Scotland; 'NI', Northern Ireland; 'Wales', Wales; 'Eng' in England or UK level. 'Gov' indicates that the interviewee works for the government (officer or politicians); 'Adv' = advisor; 'LPA' = local planning authority; 'NGO' = non-governmental environmental group; 'Com' = company; 'Tra' = trade association; 'Aca' = Academic. The number at the end differentiates interviewees within the same category of respondent.

¹ Digest of UK Energy Statistics 2015 Regional spreadsheet 2003–2014 installed capacity MW, September 2015, (accessed 27.05.16).

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