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innovation and the case of the zero carbon homes agenda in  
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# **In search of green political economy: steering markets, innovation and the zero carbon homes agenda in England**

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## **Abstract**

Advocates of a democratic ‘green state’ challenge Hayekian free market environmentalist proposals for a minimal state and the emphasis of ecological modernisation discourses on technological innovation as the primary route towards ecological sustainability. However, these more strongly pro-market traditions raise important questions and provide useful insights concerning the challenges of translating the political ideology of ‘ecologism’ (Dobson 2007) into practical proposals for democratic governance. Hayekian thought raises vital questions concerning the capacity of political processes to address complex challenges of coordinating the formulation and delivery of the sustainability objectives of ecologism. Scholarship on ecological modernisation and the ‘new regulation’ offer important insights into how shifting inter-relationships between the state and private sector in the policy process might enable this challenge to be more effectively addressed. These areas for further developing proposals for a green state are illustrated here through a case study of the zero carbon homes policy agenda in England.

**Keywords:** Green political thought, ecological modernisation, free market environmentalism, zero carbon homes, regulation

## Introduction

The scale and significance of the ecological degradation caused by negative environmental externalities have become central to the case for political, non-market institutions to adopt a substantive role in shaping markets. Some ecologically-orientated critiques of market capitalism, including from eco-socialists, eco-anarchists and bio-regionalists, have advocated the abolition or radical curtailment of markets. However, a more widely adopted position has been to propose a mixed model of political economy in which there is still an important role for markets, albeit actively shaped by the state and civil society. The case for such a mixed model has been articulated by Robyn Eckersley and John Barry in terms of the ‘green state’ (Barry and Eckersley 2005; Eckersley 2004). These green state theorists offer a significant critique of the pro-market orientation of free market environmentalism (FME) and ecological modernisation (EM) (e.g. Barry 1999; Eckersley 1993). However, they also acknowledge that there is a need for further consideration of how their theoretical position translates into institutional arrangements and policy choices (Barry 2007, p. 447; Barry and Eckersley 2005; Meadowcroft 2005). In addressing this question, I argue there is scope for green state theory to draw from some key insights of these more strongly pro-market traditions, while still challenging their pro-market conclusions.

I introduce and assesses the inter-relationships between these three ideological traditions, before illustrating the implications of this analysis through a case study. In the second section, I introduce the theory of the green state and the tradition of ecologism from which it emerged. This discussion is followed by an assessment of the FME critique of the green state, which highlights the coordination challenges involved in realising sustainable development goals. In the third section, I explore how green state theory can draw from EM scholarship and the related literature on the ‘new regulation.’ Finally, I illustrate the significance of these theoretical arguments for assessing policy agendas, through a case study of governance and policy-making for ‘zero carbon’ new homes in England, from 2006 to 2013.

## **Green state theory and the Hayekian critique**

Green state theory is rooted in the tradition of ‘ecologism’ in political thought, which, as Andrew Dobson argues, is a distinctive ideology that is committed to a ‘strong’ conception of ecological sustainability (Barry 1999; Dobson 2007; Eckersley 2004). In this respect, ecologism draws from the ecological economics of Herman Daly (1992), emphasising the non-substitutability of many ecological services, which are vitally important to future human welfare. Hence, ecologism is critical of the high levels of resource consumption and profound scale of ecological degradation in contemporary industrial societies. Ecologism questions the need for economic growth as indispensable for human welfare (Meadowcroft 2005, p. 11). Scholarship in this tradition of ecologism, reflecting a disciplinary focus in political theory, provides a thorough account of how a commitment from the state to strong sustainability can, in significant ways, be considered compatible with liberal principles, including a degree of state impartiality, pluralism, democracy and a degree of consumer choice (e.g. Barry 1999; Dobson 2007; Eckersley 2004). Furthermore, the work of Eckersley and Barry in particular offers some discussion of the institutional form that such a ‘green state’ might take<sup>1</sup>. They emphasise the importance of public participation as a way of realising sustainability goals (Barry 1999, pp. 119-121; Eckersley 2000). Also, they advocate an avowedly ‘pragmatic’ approach to addressing policy choices between ‘market mechanisms,’ such as environmental taxes and emissions trading, or other forms of regulation (Eckersley 1993; 2000, p. 244). Hence, they avoid detailed, prescriptive ‘blueprint’ models of political economy (Barry 2007, p. 460). Yet, as further discussed below, there remains both significant scope and need to address important questions prompted by Hayekian FME about governance and policy-making processes in the ‘green state’.

Strongly influenced by the work of Friedrich Hayek, FME advocates private property rights over environmental resources, accompanied by market competition and exchange, as the most effective way of managing their use. In the FME model, the state refrains from seeking to substantively shape market outcomes to achieve particular normative goals. Indeed, property rights and associated rules for addressing environmental problems and internalising externalities, FME argues, are usually best defined through

decentralised negotiations between property owners rather than by the state (Anderson and Leal 2001; Pennington 2011; Pennington 2008). FME emphasises the importance of individuals having the right to exit one system of rules by moving to another. This, FME expects, would lead to the evolutionary emergence of a plurality of institutional arrangements, across different scales depending on the scale of the environmental problem concerned (Pennington 2008, pp. 442-3). This evolution and indeed competition between different institutional arrangements for market exchange is envisaged as constraining the scope of state decision-making, which tends to be less robust as a way of addressing complex, multi-scale challenges (Pennington 2008)<sup>2</sup>.

There is some significant common conceptual ground between Hayekian FME and ecologism (Greenwood 2008). Both recognise the qualitatively distinct, incommensurable character of the values that motivate economic behaviour and the uncertainties and complexities involved in choosing appropriate means for translating these values into governance and policy arrangements. Each challenges the state-market dichotomy that underpinned much of the twentieth century debates about markets, emphasising the potential for decentralised, evolutionary processes of institutional change that might involve various combinations of state, locally defined institutions and markets. Each ideology recognises the continued significance of the question of the most appropriate role of state and markets in addressing environmental problems. It is in their contrasting responses to this question that the most important difference between them lies.

FME offers two main pro-market arguments concerning incentives and knowledge, which are given varying emphasis by FME authors. Terry Anderson and Donald Leal (2001) emphasise how private owners of ecological services have especially strong incentives to identify and act upon the most valued uses for ecological services, as signalled by markets. Providing various examples, including management of parklands, forests and fisheries, they develop a critique of public ownership. Government officials, they contend, lack incentives to make the most effective uses of environmental resources. Mark Pennington has

further argued that incentives problems impede democratic mechanisms for holding public officials to account. Elections, he stresses, involve a collective action problem, with citizens lacking incentives to acquire and act upon information about governmental decisions (Pennington 2011, pp. 50-80; 2008, p. 440). Yet Pennington's case for markets also draws closely from the Hayekian 'epistemological' argument. Market prices, he emphasises, enable a highly decentralised process of coordination by encapsulating complex information about demand and supply, guiding producers and consumers as they exercise their locally situated knowledge and expertise in searching for new, innovative ways of achieving their goals (Greenwood 2011; Pennington 2008, pp. 435-6). FME does not claim that market coordination is perfect, only that it is indispensable in the face of complex choices concerning the most effective uses of ecological services across a range of different geographical scales.

The flip side of this Hayekian epistemological argument for markets is a stringent critique of non-market, governmental decision-making. In his critique of Eckersley's proposals for a green state, Pennington stresses that because state decision-making is necessarily more centralised than markets, it is far less capable of enabling the encapsulation and discovery of the complex, changing and locally situated values, preferences, knowledge and expertise of economic actors (Pennington 2008, pp. 432-433). In this context, he emphasises, state interventions run the danger of having consequences that are arbitrary in the Hayekian sense of failing to translate those values into practice. Decision-makers' particular interests and values might come to override those held by wider publics. Or decisions might fail to achieve their goals due to unforeseen consequences. Hence, even if there were a widely shared commitment to a generally defined normative goal, such as the 'strong' conception of sustainability advocated by ecologism, translating this goal into practical policy still involves significant challenges. The question would remain of how the sustainable limits are to be specifically defined and which policy strategies and tools will ensure that these limits are respected. These decisions require assessment of difficult choices and complex trade-offs involving a range of ecological, economic and social values (Greenwood 2008). Hence they can involve significant problems of coordination, whether between sectors ('inter-policy coordination'), across governance scales ('cross-scale

coordination) or defining policy within a specific policy sector ('intra-policy coordination') (Greenwood 2012).

While Hayekian FME raises important questions for green state theorists, there is significant scope for greens to challenge FME proposals. The effectiveness of the right to exit, proposed by FME as a mechanism for promoting ecological sustainability, also depends on actors having the incentives and knowledge to effectively exercise this right. Markets could work against these two preconditions being met, as emphasised by ecologism and the well-known critique of advertising as 'misinforming' customers about products they are purchasing. Even where these conditions are met, community values and cultural ties, the significance of which is emphasised by ecologism and green state theory, might mean that people choose to seek social change through a collective, political process, rather than primarily through individual decisions about which communities to enter and exit. Green state theory might point out that in an FME system, the emergence of such democratic processes could lead to a stronger role for states than is countenanced by FME.

Indeed, it can be argued that, where environmental problems involve costs and negative impacts across a large, even global, scale, as is the case with climate change, the role of states and international governance in establishing an overarching framework for market mechanisms would need to be more substantial than FME theorists acknowledge. Hence, Eckersley (1993) is critical of FME for neglecting the sheer scale of contemporary ecological challenges and proceeds to argue for stronger forms of international governance (Christoff and Eckersley 2013). Of course, as green state theorists readily acknowledge, various sub-national institutions have a vital role in tackling climate change. Their potential role is famously highlighted by Elinor Ostrom's work on common pool resource problems which highlights that decentralised processes of / for shaping market arrangements, similar in kind to those advocated by FME, can be a relatively effective



way of achieving sustainable outcomes (Pennington 2013). Yet even Ostrom (2010) considers a global regime for tackling climate change to be a necessity.

The Hayekian FME perspective is more strongly sceptical about the feasibility and likely effectiveness of global political institutions for tackling climate change (Pennington 2008, pp. 446-447), emphasising the epistemological challenges involved in setting and delivering global targets for CO<sub>2</sub> emissions reductions in a cost-effective way. This view is reflected in Anderson's (2007) argument that climate change is most effectively addressed through the impact of market signals, with higher insurance premiums signalling the cost of future climate change impacts such as rising sea levels. However, ultimately, Pennington (2013) acknowledges that the question of the relative effectiveness of different institutional arrangements across different geographical scales in 'internalising' externalities is a contingent one. He accepts that there can in some instances be a role for global-scale institutions. Yet he emphasises that the potential negative impacts of highly centralised decision-making across international or global scales need to be weighed against any additional benefit they might have in terms of internalising externalities. It is beyond the scope of my present discussion to conclude as to whether we should concur with Ostrom or Pennington on this question about the role of global climate change governance. The main point to emphasise here is that FME offers an intriguing hypothesis concerning the profound epistemological challenges for the green state in tackling such complex, multi-scale policy challenges.

### **Ecological modernisation and the new regulation**

In reflecting further on the form that a 'green state' might take, there is also scope to draw insights from the ecological modernisation literature into how governance can foster market innovation in 'win-win' technologies that are efficient in both ecological and economic terms (Gouldson and Murphy 1996, p. 13). The critical perspective of ecologism and green state theory towards economic growth of course questions how far sustainability can be achieved through market innovation alone, emphasising the need to reduce the

ecological cost of consumption. Yet critiques of EM from authors in the tradition of ecologism have tended to overlook some potential for them to draw from the achievements of EM-inspired policies, which are particularly evident in corporatist countries such as Germany (Spaargaren 2000, p. 53). The EM discourse, as Barry (2007) suggests, can have a valuable role in encouraging transitions towards sustainability in the stronger sense advocated by greens:

the adoption of ecological modernisation as a starting point for the development of a model/theory of green political economy does carry with it the not inconsiderable benefit of removing the 'anti-growth' and 'limits to growth' legacy, which has (in my view) held back the theoretical development of a positive, attractive, modern conceptualisation of green political economy and radical conceptualisations of sustainable development. Here, the technological innovation, the role of regulation driving innovation and efficiency, the promise that the transition to a more sustainable economy and society do not necessarily mean completely abandoning current lifestyles and aspirations – strategically important in generating democratic support for sustainable development (Barry 2007, p. 460).

Some other scholars, who share significant common ground with 'green state' theory while not adopting the term, have noted this potential to draw from the insights of EM. Michael Jacobs (1995), who shares the commitment of ecologism to a strong conception of sustainability as conceptualised by Daly, emphasises the potential political leverage of 'green growth' discourses that share with EM the assumption that economic growth and material throughput can be decoupled. The potential common ground between ecologism and EM thought is also evident in Dryzek and Christoff's case for a 'strong,' as opposed to 'weak' EM. They trace 'weak EM' back to Martin Jänicke's focus on the potential for identifying win-win technologies that combine 'ecological and economic efficiency' (Janicke (1988: p. 23 cited in Christoff 2000, p. 213). This form of EM is primarily concerned with maintaining or improving market competitiveness (Christoff 2000, p. 213) but also suggests the need for significant changes to production and consumption patterns. By contrast, strong EM starts from assumptions very similar to those of ecologism. The need is emphasised for

‘reflexive’ assessment, not only of technologies but of the social, cultural and communicative contexts within they are developed and utilised. Strong EM, they explain, stresses the need to address ecological challenges in a ‘holistic’ (Dryzek 1987, p. 11) way that considers the multiple different social and economic factors that are causing current levels of production and consumption to exceed ecological limits.

This strong form of EM deliberately counters the view that EM is a purely ‘technocratic’ approach, a view that in any case is based on a selective reading of the EM literature (Mol and Spaargaren 2000, p. 21).

Indeed, the starting point for much EM writing, including for authors such as Huber who have been classed as articulating weaker forms of EM, is a critique of traditional top-down approaches to environmental regulation led by state bureaucracies. For example, Weale (1992, p. 208) emphasises the need to shift from simple pollution prevention to consider the quality of environmental management in terms of encouraging broader socio-technical innovation. Although EM authors do not explicitly discuss the FME epistemological argument, their work offers useful insights into how policy processes might address epistemological, as well as incentives-related challenges for environmental governance. Weale (1992, p. 177) emphasises the important potential role of firms in policy formation, through a process of ‘regulatory negotiation’ which can help to overcome ‘asymmetries of information’. This is notably reminiscent of Charles Lindblom’s (1965) notion of ‘partisan mutual adjustment (PMA),’ a process in which a plurality of actors seek to reconcile their contrasting interests and values through negotiation, albeit, as he later acknowledged more explicitly, with unequal degrees of power (Lindblom and Woodhouse 1993). Lindblom’s account of how PMA enables the utilisation and further development of policy actors’ knowledge and expertise suggests an understanding of non-market, political processes performing a coordinative role that is strikingly analogous to the Hayekian account of market coordination.

In relation to policy strategies and tools, there is a close inter-relationship between EM and the literature on the ‘new,’ ‘smart’ regulation (Jänicke 2008). This literature offers important insights into how

epistemological and incentives-related challenges for governance can be addressed. Conversely, the EM perspective resonates in the new regulation literature, where a central claim is that this regulatory approach, rather than inhibiting economic growth can enhance firms' competitiveness (Porter and van der Linde 1995). Performance-orientated regulation focuses on defining the sought outcomes, rather than specifying means of achieving them. Advocates of this approach emphasise that, by allowing industry flexibility in how general standards are achieved, it is less vulnerable than are more prescriptive approaches to the kind of unintended, 'arbitrary' consequences, of which Hayek warns (Rosenbaum 1991). Furthermore, performance-based regulation can be more likely to encourage firms to surpass minimum standards. Potential future standards become easier to anticipate, whereas prescriptive, technology-based regulation encourages firms to adopt a 'tick box' approach (Tenbrunsel et al. 1997, p. 108). The case for non-mandatory environmental assessment emphasises the costs and practical disadvantages of compulsion (Fiorino 2006), while providing firms with incentives to move beyond compulsory minimum standards, including the potential for companies in terms of enhancing their image, or 'brand,' satisfying the concerns of their customers and/ or employees (Berry and Rondinelli 1998). The knowledge discovered through processes of defining and achieving such non-mandatory standards can thus re-orientate market actors' incentives towards ecological sustainability objectives.

This recognition of the potential for governance processes to 'steer' markets towards sustainability goals brings into focus the question highlighted by Weale concerning how to combine different kinds of 'expertise' in policymaking while also responding to wider public opinion (Weale 1992, p. 176). Associated with the case made by ecologism and advocates of 'strong EM' has been a critique of the dominance of elites and technical experts in policy-making (e.g. Barry 1999, pp. 188-9; Dryzek 1997, p. 174). Yet expertise can of course be understood in a broader sense to include various types of expertise, including private sector and non-governmental perspectives. Eckersley suggests the need for 'reflective', ongoing processes of policy learning in which the selection of policy tools and the wider strategic and institutional context that shape the policy process are continually assessed (Eckersley 2004, p. 80). However, there remains a need for

empirically-orientated research further exploring exactly how such reflective learning processes, drawing from various kinds of expertise, might engage with the epistemological dimension of the challenge of environmental governance. This question is further explored below through a case study of the zero carbon homes policy agenda in England.

### **Case study: The zero carbon homes agenda in England**

#### *Case study introduction*

In 2006, the housing minister for England, Yvette Cooper, set the target that all new homes built from 2016 should be 'zero carbon'. This seemingly reflected the kind of ambitious 'strong sustainability' objectives advocated by ecologism and received support from environmental organisations such as Friends of the Earth and WWF. While there was general recognition that achieving such a target would entail additional costs for industry and consumers, government emphasised the potential for reducing these costs through ongoing innovation encouraged by regulatory reform. This reflects what Barry (2007) highlights was the Labour government's commitment to an EM agenda.

While the zero carbon agenda involved the need to tackle vested interests and resistance to such a policy ambition (Williams 2012), it also, as further explored here, involves significant challenges of policy coordination. The sectors affected include building regulations (especially Part L on energy efficiency), planning and energy policy. Reforming the scope, rigour and objectives of Part L was of central importance and Government signalled that revisions to Part L in 2010 and 2013 would be needed as intermediate steps towards the 2016 target. Aside from these mandatory national regulations, there are other non-mandatory standards, which can be incorporated into the local authorities' planning frameworks. An important case in point, launched alongside the 2016 target, has been the Code for Sustainable Homes, a national standard initiated and owned by the government but developed and maintained by the private company BRE. The Code assesses new homes according to nine categories of sustainability criteria, including energy use, water,

materials, health and wellbeing. Furthermore, there are numerous privately owned voluntary assessment schemes for buildings. With echoes of the ‘new regulation’ literature and indeed of Pennington’s case for decentralised, competitive processes of rule formation, the potential for such non-mandatory schemes to foster innovation and learning is often referred to in discussions across industry. To assess the effectiveness of these dimensions of the policy agenda, a range of different stakeholder views was analysed and compared in detail: 42 in-depth, semi-structured interviews were undertaken and over forty industry seminars and conferences attended (between 2007 and 2013). Most (39) of the interviews were conducted between 2008 and 2010, during the period of the previous Labour government.

From the perspective of ecologism, it can be questioned how far market mechanisms can promote the achievement of sustainability goals in the housing sector. The ‘right to exit’ proposed by Pennington can of course be exercised by consumers’ choices about which homes to live in and purchase. Indeed, in industry discussions, emphasis is often placed on the importance for driving up sustainability standards of home buyers being aware of the benefits and importance of sustainability criteria and of energy efficient technologies and practices within the home. However, it is also generally accepted that achieving sustainability goals in the housing sector cannot be entirely consumer-driven. Economic and social criteria such as proximity to employment and other amenities are also especially important for home buyers, which can cause sustainability criteria such as home energy efficiency to be relegated in importance for many consumers, not least in the context of the chronic housing shortage in England. The challenge of persuading homebuyers that their decision should be driven primarily by the need to provide public environmental goods such as CO<sub>2</sub> emissions reductions thus involves a significant collective action problem of the kind that, Pennington points out, can arise for democratic processes. Furthermore, even those consumers strongly concerned about home energy efficiency are likely to lack information about the energy efficiency of homes and acquiring this information involves significant transaction costs (Sanstad and Howarth 1994). This gives support for the regulatory approach adopted by the Labour government rather than reliance upon a market-based instrument such as a carbon tax, lending justification to green state theorists’ ‘pragmatic’ willingness

to consider a range of policy tools in different market contexts. The latter might, on the Hayekian view, seem less vulnerable to epistemological problems for, in principle, it would allow industry greater flexibility in choosing how to achieve emissions reductions. However, the need for regulation was widely accepted across the sector.

Aside from these weaknesses of FME proposals, the FME critique of participatory democratic approaches to complex governance challenges is pertinent to the case of sustainable housing policy. The extensive, often controversial, debate across the construction industry about the zero carbon target, took place largely away from the eyes of the mainstream media and general public. Indeed, by 2009, even 72% of MPs were unaware that the target existed (Kennett 2009). The lack of public involvement in the debate, which is often technical and specialised, supports Pennington's view that incentives and information problems greatly limit the potential for public engagement with such areas of policy. This provides grounds for accepting a significant role for various kinds of technical and economic expertise in such a field of governance. This need is arguably highlighted by EM, albeit often only implicitly as the EM literature gives little explicit discussion of the role of expertise in policy-making. The seeming acceptance by EM authors that experts have a central role in policy-making has been criticised from some quarters as a 'technocratic' view. However, the case of the zero carbon agenda provides grounds for accepting that technological and industry experts have a necessarily pivotal role in such areas of governance. As further explained below, various stakeholders expressed frustration that the policy process was not enabling innovation as effectively as it might have done. In relation to these concerns about what economists might refer to as 'distortive' effects of policy, the need was often stressed for government to listen more closely to expert opinion. Thus, in this case study, the question, prompted by both FME and EM, arises of how governance processes can draw effectively from various forms of knowledge to address the complex choices and trade-offs involved in policy-making. This is discussed further below, in relation to the challenges of inter-policy, intra-policy and cross-scale coordination introduced in the previous section.

### *Inter-policy coordination*

In debates about the ambitious ‘zero carbon’ target for new homes, the challenge of achieving ‘inter-policy coordination’ loomed large. Many stakeholders suggested the need for government to adjust the balance between the policy objectives established in different, yet inter-related, policy sectors, questioning what they saw as the rather narrow policy focus on technological innovation for new domestic buildings. Such a critique, for example, was manifest in the approach of Bioregional Quintain, a housing developer who initiated the widely publicised ‘One Brighton’ project. There are echoes of ecologism in their ‘One Planet Living’ approach to achieving sustainability, which emphasises the need for the planning and development of housing to be more ‘holistic,’ considering a broad range of sustainability criteria such as transport and food sourcing, as well as technical criteria for assessing energy efficiency and supply on which the zero carbon agenda primarily focused (Bioregional 2004). A range of stakeholders also often referred to policy for reducing CO<sub>2</sub> emissions from existing homes (e.g. Parliament 2007-8) as a potentially more cost-effective way of achieving larger emissions reductions than seeking to achieve zero carbon new homes. Hence, governmental policy priorities were viewed by many as rather skewed and hence, as Hayek would put it, ‘arbitrary’ in not appropriately reflecting the relative cost effectiveness of potential CO<sub>2</sub> emissions reductions across different sectors of the economy and policy.

### *Defining zero carbon*

Inextricably connected with the need for inter-policy coordination are the challenges involved in achieving ‘intra-policy’ coordination. In defining the zero carbon target the government sought to establish a regulatory approach that would allow ‘flexibility’ and ‘drive innovation’ (DCLG 2008, p. 25). However, some of the key decisions were viewed by stakeholders as having, in varying degrees, ‘distortive’ impacts on technology choice and processes of innovation of the kind about which the Hayekian thesis warns. Reflecting the significant uncertainty and complexity involved in foreseeing such impacts, these debates inevitably involved some disagreement amongst stakeholders. Yet in some areas of policy there was a



significant level of shared concern about policy impacts. A case in point was of pivotal importance for the zero carbon definition. It was generally agreed that the notion of a 'zero carbon' home implies that any energy used in the home from fixed building services such as heating, lighting and ventilation<sup>3</sup> would need to be generated from renewable sources. However, controversy arose about the type of renewable sources that should count towards a home achieving zero carbon. For many, the notion of a zero carbon home intuitively meant that this renewable energy would need to be generated on the site of the home itself. Advocates of such a '100% on site' definition of zero carbon, referred to by some in the industry as the 'green lobby,' saw such a target as commensurate with the urgent action required to achieve ambitious yet necessary national and global CO<sub>2</sub> emissions reductions. They were led by WWF, a large NGO with significant, close involvement and influence in the zero carbon policy process. It was also argued that the '100% on site' definition of zero carbon would spur innovation in on-site renewables, hence bringing down costs. In 2007, housing minister Yvette Cooper adopted this definition of zero carbon homes for stamp duty relief purposes. In opposition to this definition, which was also incorporated into the CSH, the majority of energy and building experts with an interest in this debate emphasised that on-site micro-renewables such as photovoltaic panels or wind turbines, especially when used in urban sites, tend to be significantly less cost-effective than larger scale 'off site' renewable sources such as wind farms. These experts saw themselves as firmly committed to the principles of environmental sustainability but emphasised that the government had chosen the wrong way of achieving the goal. The technological and economic feasibility of achieving zero carbon '100% on site' became widely questioned. This questioning of the effectiveness of government decisions in addressing trade-offs and uncertainties became increasingly widespread, contributing to the undermining of support for the zero carbon target.

Hayekian thought, though not opposed to all forms of regulation, is especially concerned with such dangers of over-prescriptive regulation, as indeed is EM. Such concerns resonated in calls from across industry for regulatory frameworks to allow designers and developers greater flexibility in how they deliver CO<sub>2</sub> emissions reductions. The only feasible way of achieving 'zero carbon,' most experts agreed, would be

through some kind of off-setting scheme in which financial contributions from housing developers towards CO<sub>2</sub> mitigation projects for each home they build would count towards achieving 'zero carbon' (Fulcrum Consulting 2009). In the U.K. policy debate, such off-settings of new homes' projected CO<sub>2</sub> emissions were referred to as 'allowable solutions.' Many advocates of allowable solutions accepted that there was a case for limiting their scope in order to encourage innovation in on-site renewable technologies. However, they stressed the need to balance promoting innovation with allowing for feasibility and cost effectiveness. Achieving this balance, which involves both epistemological and incentives-related challenges, is an important example of an intra-policy coordination challenge of integral importance to achieving EM goals, where there is potential for unintended, distortive effects to occur. The proposal by housing minister John Healey in 2009 to incorporate allowable solutions within the zero carbon definition initially met with resistance from WWF, perhaps reflecting the scepticism from some quarters of the green movement towards offsetting schemes, which can be perceived as compromising or 'watering down' a commitment to environmental sustainability. Yet this decision was made in light of industry research which showed that the '100% on site target' is impossible on 80% of housing sites (UKGBC 2008). It is notable that WWF came to accept the case for allowable solutions as providing necessary flexibility, though they sought to keep a low public profile for this shift in their position.

Some stakeholders also emphasised the need to shift the focus of policy from 'on site' low and zero carbon technologies to reducing energy demand from buildings. There was wide agreement that the zero carbon definition should include a minimum 'fabric energy efficiency standard' (FEES), though the question of where exactly this level should be set was the subject of significant disagreement amongst industry experts. This was a further example of the challenges of 'intra-policy' coordination in terms of balancing criteria such as feasibility, cost-effectiveness and the need for innovation in building technologies and methods. In comparison with the on-site renewables issue, this part of the zero carbon definition was less vociferously debated, with opinion more evenly divided. Some designers and developers favoured a strong standard of building air tightness that entailed a need to install mechanical ventilation and heat recovery (MVHR)

systems to provide sufficient ventilation. These stakeholders, such as the Sustainable Building Association (AECB), were strongly influenced by the approach of the German Passivhaus Institute and their proprietary international standard (an example of policy learning being enabled by non-mandatory schemes). By contrast, larger house builders highlighted what they saw as the dangers of a requirement for MVHR, arguing that the home-buying public would not adequately understand such a system. Consequently, occupants might not use the system properly and might, for example, leave windows open, which interferes with the working of MVHR and can lead to a net increase in energy use. Again, this is an example of the kind of potential ‘unintended consequence’ about which the Hayekian thesis warns. Advocates of the Passivhaus approach argue that there is potential for avoiding such problems. Here the ideas of ecogism have resonance, particularly the critique of ‘weak EM’ as being over-reliant on technological solutions and neglecting the need for a more ‘reflexive’ approach that considers the broader social context within which technologies are employed and used. This could involve, for example, informing and educating home occupiers about such technologies. Contrasting views about these different potential ‘distortive’ effects thus arose in this part of the zero carbon agenda and indeed in other parts of the policy not discussed here, including some of the 2010 revisions to Part L and elements of the CSH that would shape the route towards the 2016 target (Greenwood 2012).

### *Coordination across scales*

The question of the most appropriate geographical scale for defining housing standards and the need for coordination across different national and sub-national scales is a further key dimension of the zero carbon homes debate. In those policy areas where English governance arrangements do allow local authorities significant planning autonomy, some of the outcomes have been quite widely criticised. For example, since local authorities have been allowed to establish local planning objectives and targets such as the percentage of energy to be drawn from on-site renewable sources or minimum levels of the CSH, the targets set by some have been criticised for promoting inefficient means of reducing CO<sub>2</sub> emissions. Proposals by the coalition government, following the launch of its ‘localism’ agenda, to allow local authorities freedom to set

the maximum level of allowable solutions that could count towards achieving zero carbon, were also criticised. Such local variation, it was argued, would increase regulatory complexity and transaction costs that developers face in planning and delivering housing developments across different areas. That such views arose even in the English system, where the autonomy of local authorities is constrained to a significant degree by central government, lends support to the case for a green state in which regulation from central government has a significant role in promoting the attainment of sustainability objectives. These critics also reflect on the plethora of different voluntary standards in the U.K., stressing the varying quality of these schemes and the difficulties for both consumers and suppliers of assessing them. Such private, proprietary standards are of the kind that FME suggests can be expected to emerge through decentralised market processes. While recognising a role for such standards in some aspects of the sustainable homes area, the coalition government took steps to reduce and streamline the standards that can be incorporated into local authority plans, initiating a review of national housing standards (DCLG 2013). This was a response to recent calls for a clear and consistent, government-led, national framework that will limit the scope for regional or local variation to some specific areas where it is thought to be especially necessary, such as water efficiency, where the significant differences in water supply across the U.K. is widely acknowledged.

### *Policy-making, expertise and leadership*

The introduction of the 2016 target and associated regulatory changes are widely recognised to have been a significant spur to innovation across the sector. However, as discussed here, there has been much concern amongst stakeholders about the potentially arbitrary, detrimental impacts of the specific ways in which policy has sought to deliver emissions reductions. Such concern was expressed by one interviewee:

It's not about how far you go in terms of sustainability – that is not what the debate's about.

The debates are about how you get there and what is a sensible way to do sustainable policy.

Some concerns expressed about particular policies are illustrative of Hayekian warnings about the inherent problems of governmental decision-making in the face of complexity. As suggested by Lindblom (1965) however, political processes offer potential for addressing coordination problems, with the question of how effectively they do so being a contingent matter, hinging in some significant ways on the specific institutional arrangements. For example, some interviewees felt that some key government decisions, that they saw as misguided, were the result of housing ministers not sufficiently heeding the advice of industry experts, the 2007 decision on the ‘100% on site’ definition of zero carbon being an important example. Cases were also mentioned where civil servants were considered unresponsive to industry concerns, or at least as not effectively communicating these concerns to ministers. Yet, there is evidence that stakeholders’ widely voiced concerns about some policy decisions have led to policy learning of the kind that Lindblom’s discussion of partisan mutual adjustment suggests is possible. The decision to withdraw the commitment to 100% on-site renewable is a key case in point.

Seemingly in response to ongoing concerns about how policy-makers can most effectively draw from industry expertise, some rather more innovative policy processes have been adopted. For example, in order to define FEES, an industry-led working group semi-independent of government was set up to propose a suitable minimum standard. This group was facilitated by the Zero Carbon Hub, a network of professionals representing various firms and groups from across the construction and energy sectors. Several interviewees who participated in the working group commented favourably on how this had made for a more inclusive process. The unanimous agreement reached by the group on a proposed FEES standard was widely viewed as a substantial achievement, given the potentially conflicting interests involved. Several participants felt that having an independent facilitator encouraged a greater degree of honesty and openness, compared with traditional government-run committees. Those participants interviewed did see the decision as ultimately a compromise negotiated between conflicting interests with varying degrees of influence. Again, this view of the outcomes of negotiation is reminiscent of Lindblom’s account of PMA and is perhaps an example of negotiations reaching what one interviewee described as the “point of least resistance.” Some expressed

concern about the lack of research and evidence to support the decision on FEES. Indeed, this concern was expressed in relation to several areas of policy for zero carbon. Another key example was the widely agreed need for further research to support the development of the Standard Assessment Procedure (SAP) model used for assessing whether the energy efficiency of housing designs complies with Part L of the building regulations. Ideally, the vast majority of stakeholders stress, a stronger evidence base would serve as the grounds for government to provide more decisive, independent leadership in this policy area.

The question of leadership was often seen by stakeholders as being of vital importance, even for establishing 'new' regulatory strategies, in which government seeks to adopt a 'steering' role, departing from previous, prescriptive regulatory approaches. Related to this, industry representatives were often exasperated at the lack of a clear regulatory 'roadmap' towards the 2016 target. The Labour government originally promised to confirm the definition of allowable solutions by December 2009 but no announcement was made before it left office in 2010, and by late 2014 the details remained unconfirmed. There was also significant uncertainty and delay prior to the 2010 and 2013 revisions to Part L being announced, as well as ongoing uncertainty concerning the future of the CSH ever since the '100% on site' requirement was dropped from the zero carbon definition. Leadership is widely considered by stakeholders to be of vital significance, as further suggested by the quotations from the case study below:

As we move into technically extremely challenging areas like zero carbon, sometimes you have to know all the technical stuff to have any chance of understanding whether the policy is achievable. And... trying to explain to ministers who are not technically competent that a particular policy is just not technically feasible is quite difficult because they'll say 'well that's our policy'. (Industry representative with involvement in policy process).

We've no policy clarity. Without regulation, it's not just developers who've not been able to future proof. Manufacturers, suppliers of goods and services and consultants haven't been able to prepare. Each minister ... (has) tried to out-green each other. And they have not done it on the basis of substantive policy research and understanding of the issues.

(Housing developer sustainability manager).

I'm very supportive of the government in this.... We all want to... and certainly my ambition is to have a structure which is really driving sustainability forward.

Unfortunately, they have started in completely the wrong place, with the wrong tools and the wrong aims, the wrong timescales. You name it, it's virtually all wrong.... Until they face some of the fundamental issues, we're going to continue to go round and round the mulberry bush... Us saying one thing and them saying another and not getting anywhere.

(Industry representative with involvement in policy process).

There isn't a 'joined up-ness' to say 'what's the direction of travel here that we're trying to achieve? Where is the compromise that needs to go in to make sure that all these regulations are actually honed in to delivering us onto this direction of travel.

(Sustainability consultant).

There is scope for further reflecting upon the kind of leadership that is required, given that establishing such a clear regulatory framework involves reconciling both different interests that place contrasting emphasis upon environmental, social and economic objectives and different kinds of socio-technical and economic expertise. This is a question that is not explored as fully as it might have been either by advocates of the green state or advocates of EM.

## **Conclusion**

From the perspective of ecologism, both FME and 'weak' EM discourses can be seen as over-reliant on technological innovation as the primary route towards ecological sustainability. Both perspectives arguably

underestimate the extent of the substantive action required from states to re-shape markets towards achieving ecologically sustainable outcomes. Yet there is significant scope for the case for a green state to draw from both of these more strongly pro-market traditions. The Hayekian FME perspective provides a useful conceptualisation of coordination challenges for environmental governance in the face of complexity. The EM perspective towards policy-making offers some important insights into how these challenges might potentially be addressed, notably in highlighting the vital, potentially close inter-relationship between policy-making processes and private sector expertise and innovation. In these contrasting ways, both FME and EM bring into focus the general question of how governance processes can achieve a coordinated approach that is responsive to public concerns while also drawing from the technical and economic expertise of a range of stakeholders.

There is significant need for green state theorists to engage further with this question, the significance of which has been illustrated here through a case study of the zero carbon homes policy agenda in England. There is a widely agreed need for policies across scales and sectors that affect the delivery of new homes to steer industry towards lower CO<sub>2</sub> emissions, while allowing scope for flexibility and innovation, enabling this goal to be balanced with other economic, environmental and social objectives. As has been shown, government has been widely criticised for not satisfactorily addressing this challenge of coordination in a way that maintains clear leadership while being sensitive to the different kinds of expertise that need to be considered. Stakeholders expressed concern that regulations often had the kind of distortive impacts about which Hayekian FME warns. These concerns about inter-policy, intra-policy and multi-scale coordination highlight how achieving even the 'weak EM' goal, of promoting 'win-win' technologies that simultaneously improve both environmental and economic efficiency, involves some significant, complex challenges for policy makers. While the general policy discourse of the Labour government reflected EM aspirations in this sense, their approach was criticised for failing to achieve the kind of evidence-based, flexible, performance-orientated regulation advocated by EM. As this case study has shown, it causes widespread frustration for stakeholders when they perceive a lack of such coordination and indeed leadership. This, in turn, can



undermine working towards the kind of broader, stronger conception of sustainability advocated by ecologism. In this respect, there is scope for synthesising the insights of FME and EM into the coordination challenges of achieving even 'weak EM' with a commitment to ecological sustainability in the strong sense.

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<sup>1</sup> The term 'green state' was first used by Eckersley (Eckersley 2004). Barry (Barry 1999) initially articulates his institutional proposals in terms of 'collective ecological management,' though later adopts the term 'green state' (Barry and Eckersley 2005).

<sup>2</sup> Interestingly, Pennington does not follow Hayek (1960, p. 109) in proposing the establishment of the kind of body of legal experts to oversee the application of national constitutional law proposals which themselves seem vulnerable to the Hayekian knowledge argument (Greenwood 2010, pp. 772-3).

<sup>3</sup> These are known as 'regulated emissions' because they are covered by building regulations, unlike other energy uses such as cooking and use of other non-fixed home appliances.