

Practices, programs and projects of urban carbon governance: perspectives from the Australian city

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Abstract: This paper addresses the governance of transitions to lower carbon cities. Drawing on both governmentality and neo-Gramscian perspectives, we chart and explore the diverse objects, subjects, means and ends evoked as governmental programs, or hegemonic projects in-the-making, are shaped to orchestrate urban carbon governance. We ask about the diversity of what is being sought through the governance of carbon in the city, how this is rendered and how carbon is being made to matter in the city. We do so through analysis of an audit of carbon governance initiatives in Australian cities, and a characterisation of these initiatives as four distinctive governmental programs. To make sense of the diverse ecology of initiatives revealed, we adopt a typological approach to suggest four distinctive governmental programs —Behaviour change; Demonstration; Transition; and Advocacy. We suggest that Australia’s emergent landscape of urban carbon governance both reproduces existing governance orderings *and* contains openings —via fragile emergent hegemonic projects—that might produce more transformative orderings: not least because of the demands and politics the low carbon subjects being invoked might be empowered to pursue but also because of the potential reconfiguration of the ‘integral state’ as new governmental programs are imagined and enacted.

Key words: Urban carbon governance; Gramsci, Governmentality, hegemonies in-the-making, Australia

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1. Introduction

This paper addresses the practices, programs and projects through which the urban governance of carbon is being accomplished. Our aim is to further understandings of how transitions to lower carbon cities are being governed through examining the case of Australia. We focus on carbon governance as the explicit efforts directed towards decarbonising the city – usually driven from a concern to mitigate climate change, but also bound up with imperatives to diversify energy supply and integrate renewables into the energy system. Australia offers an intriguing context for this task. On the one hand, the political governance of climate, and of carbon in particular, has become mired in political contest and compromise (Howarth and Foxall, 2010). Yet on the other hand myriad actions organised by diverse actors, and operating across diverse spaces and scales, are shaping new modalities for carbon governance (Moloney et al, 2010; Jones, 2012). In terms of spatiality, Australia is no exception to the widely held observation that the city is being shaped as a crucial governable space for carbon (Betsill and Bulkeley, 2007; Hodson and Marvin, 2010). Our own audit of carbon governance initiatives in Australia’s capital cities, conducted under the Australian Research Council-funded Australia’s Cities and Carbon Reduction project (see section 3), revealed an ecology of nearly 900 initiatives involving state and non-state actors, working alone and in hybrid partnerships, acting across different domains, and through different modes.

Making sense of this ecology of initiatives being enacted in and through the urban, our analysis adopts a typological approach to the governmental programs being shaped, which we categorise as Behaviour change; Demonstration; Transition; and Advocacy. As we elaborate below, they suggest differentiable rationalities or ‘wills to improve’ (Li, 2007)—or, in Gramscian terms, emergent hegemonic projects—reflected in the orchestration of varied arrangements of actors and mechanisms, subjects and objects of governance, and forms of knowledge. Our typology provides a framework within which we aim to chart empirical and theoretical concerns about the emergent logics and practices that are orchestrating urban carbon governance. We are led in the first instance to pose the broad but rather straightforward questions: What kinds of things are being sought through the governance of carbon in the city and how are these rendered? How, then, does carbon come to matter in

the city? And we build on these to speculate on two wider questions. First, how might the emergent practices and rationalities of carbon governance be implicated in reproducing existing governance orderings—is it being packaged into familiar forms and structures, practices and relationships and contributing to the maintenance of particular social formations? Second, and no less important, how might emergent logics and practices be capable of contributing to shaping new (potentially transformative) orderings of governance (see Perkins, 2011)? As such we are concerned with the question of hegemonies-in-the-making.

In exploring these questions our analysis draws together neo-Gramscian-informed insights with a governmentality analysis. The neo-Gramscian¹ approach focuses on the processes and dynamic configurations involved in constituting and reproducing hegemonic governance forms, relations and purposes, while governmentality analysis aims to identify the logics and assemblage of practices (problematizations, mechanisms, subjectivizations) and entities through which governance towards particular ends is mobilised. Notwithstanding ontological differences between neo-Gramscian and Foucauldian perspectives we, like others (Jessop, 2007; Li, 2007; Ekers and Loftus, 2008; Okereke et al, 2009; Bulkeley and Schroeder, 2012), find this a productive theoretical ground for probing questions about the sedimented and shifting practices, processes, entities and relations through which urban carbon governance is being made (and remade).

However, we avoid a tendency in both Gramscian and Foucauldian analyses to interrogate single hegemonic projects or governmental programs and to over-prescribe claims to the dominance of neoliberal rationality and ordering within them (see Walters, 2012). Rather we are interested in understanding the multiplicity through which urban carbon governance is being fashioned and orderings of carbon governance are being formulated. Resisting the homogenising effect of presuming emergent programs of urban carbon governance to be pervasively or exclusively neoliberal, these combined approaches can in fact be beneficial for recognising the variety of logics, techniques, objects and subjects being drawn together in

¹ Drawing on Morton (1999) and Levy and Newell (2002) we use the term 'neo-Gramscian' to refer to thinking in a Gramscian way rather than drawing on Gramsci in any doctrinaire sense. A neo-Gramscian approach draws on Gramscian notions in ways that are significant to present problems and that can be combined with other intellectual frameworks.

emergent governmental programs or hegemonic projects. Applied to our audit of carbon governance initiatives, a neo-Gramscian/governmentality framework helps to tease out the varieties of ways of governing carbon at work and, in a wider sense, contribute to the identification of different interests, rationalities and orderings in the making.

We begin by developing the argument for a neo-Gramscian and governmentality approach, bringing these perspectives together to think about urban carbon governance as a suite of inter-related governmental programs or hegemonic projects in-the-making. We then use this approach to analyse the programs we identify as emerging in Australia's urban carbon governance, drawing out aspects of their rationality and practice, and the alignments of objects and subjects they mobilise. We conclude with critical reflections on the diverse political work they attempt and with speculations on their capacities both to sediment existing governing orderings and to contribute towards the formation of transformative governance possibilities that may be both entangled with and exceed neoliberal governance forms.

2. Hegemonic projects in-the-making: governmental programs and urban carbon governance

As global environmental governance has been fashioned through attempts to create marketised governance regimes, social science analyses have, understandably, focused heavily on the production of carbon as a commodity and its subsequent neoliberalised governance through carbon economies and enrolment in circuits of accumulation (Böhm and Dabhi, 2009; Bailey et al, 2011; Newell et al, 2012). Important as the political work done by this mode of carbon governance is, we wish to argue that carbon does more and different political work through diverse means, including work that speaks to the maintenance and reproduction of wider structures and systems and, potentially, their transformation. Such an argument requires caution against overvaluing neoliberal forms, modes and purposes of governance, thus producing reductive analysis in which the co-presence of other ways of governing and transformations in the objects, subjects, means and ends of government cannot easily be discerned (Walters, 2012).

The emergence of the city as a governmental space for carbon, then poses intriguing questions around the multiplicity of what is sought through the governance of carbon, of

how carbon is made to matter in the city and of what might it do in different contexts. Rice's (2010) analysis provides a productive point from which to consider these concerns.

Focussing on Seattle, Rice explores how climate and carbon are harnessed to do political work in the city. She argues that the local state reproduces its governmental authority and exercises its political power by drawing on climate as a central focus for urban policy. It makes climate governable *through carbon*, primarily applying techniques of inventory and accounting that monitor and control carbon emissions from urban activities and link them to particular territories that match the territorial logic of the state, reinscribing state institutions' boundaries and governing capacity. For Rice, these steps of climatization, carbonization and territorialisation enable the mobilization of state authority and political power through governing carbon, by creating and enrolling responsabilized carbon-relevant citizens as governable environmental subjects.

Here we extend Rice's (2010) insightful analysis in two directions. First, we argue that carbon is understood and made relevant to the workings of urban government—or in Rice's term, that urban government is carbonized—in a variety of ways that exceed the territorialised accounting mechanisms that are the focus of her account. This demands receptivity to the multiplicity of carbon governance. That is, it requires recognition of the multiple ways in which carbon is related to the city and rendered governable, beyond notions of carbon economies and related accounting metrics². Second, and relatedly, we argue that understanding urban governance of (and through) carbon requires us, explicitly, to view 'the state' and its powers of rule as distributed (Ekers and Loftus, 2008; Okereke et al, 2009), accepting the wide array of entities through which the urban governance of carbon is achieved. In governing carbon, states (attempt to) orchestrate relations with non-state actors in the private sector and civil society to achieve governmental objectives through an array of political practices of shared governance that extend beyond relations of coercion and contract (see Li, 2007; Perkins, 2009). Such orchestration necessitates contending with the lack of unity of purpose, the diverse logics and wills and the incompatibilities across the

² Indeed Rice's analysis is sympathetic to this. She acknowledges that "state power is expressed in diverse ways through many sites of governance....[so] a more nuanced look at state practice, particularly as it occurs through the most routine and everyday activities of local governments, might shed light on the state-nature relationship being expressed through new subnational climate change programs" (2010:930) .

actors and entities involved in governing. So we are left with a dynamic view of states as heterogeneous and constructed, and as porous, processual and relational in character (M^cGuirk and O'Neill, 2012). But beyond this, viewing states' powers of rule as distributed also means taking a wider view of governing authority. It means accepting that legitimate governing authority may be generated 'outside' states through processes of authorisation generated through the process of governing (Bulkeley, 2012).

In bringing Neo-Gramscian thinking together with Foucauldian governmentality, we mobilise Walters' (2012) characterisation of governmentality as a cluster of concepts and hypotheses that is open to dynamic extension and to productive combination with other conceptual frameworks, to develop new ways of considering contemporary governance issues. Despite generative tensions around the concepts of power, 'the social' and the nature of struggle (Ekers and Loftus 2008)³, aligning governmentality and neo-Gramscian perspectives can provide the wider theoretical prism needed to take forward the analysis we seek to progress. As we elaborate below, this alignment takes us beyond conventional networked understandings of urban governance. It provides insight into how carbon governance is enacted, practically and materially, and specifying the diverse and changing ways mechanisms, objects and subjects are articulated through governance practice. It remains receptive to the multiple orderings taking shape in governing carbon and the competing logics and relations that underlie them. Moreover, in recognising the distributed nature of rule, it overcomes problematic state/non-state distinctions in understanding how governance capacity and authority is realised (Buttigieg, 1995; Walters, 2012).

A Foucauldian governmentality approach understands government as responding to distinctive problematics in need of 'improvement' (Foucault, 2009, 105). Government centres on 'the conduct of conduct'; that is, directing subjects' behaviours in line with a set of norms or ethics towards a variety of ends (Dean, 1999). This requires distinct rationalities or mentalities which provide visions of the 'right manner of disposing things' (Li, 2007, p.6), organising institutional spaces and the conduct of populations in line with specific aims and objectives (Raco and Imrie 2000, p. 2190). In their turn, rationalities frame or problematise

³ In the limited space available we do not attempt to explore the tensions between Foucault's poststructural and Gramsci's Marxian forms of theorising. We align with Ekers and Loftus' (2008) reading of these tensions as generative and reconcilable, while noting that Barnett (2005) finds them incommensurable.

the objects to be governed, gather forms of knowledge that make these objects discernable and known in particular ways. Ultimately, rationalities suggest the mechanisms or technologies of governance through which the ‘right disposition of things’ might be achieved (Rose, 1996; Paterson and Stripple, 2010). Effective government, then, relies heavily on ensuring the ‘self-government’ of relevant actors by shaping subjects who enact governmental objectives by conducting themselves in accordance with rationalities, knowledges and norms aligned with governmental ends (Dean, 1999, pp. 10-11, and see Rutland and Ayett, 2008).

This perspective attends to the programmatic nature of attempts to govern economic, social and environmental domains in line with governmental objectives. Yet it is also adept at identifying how any program of government is “not the product of a singular intention or will. It draws upon and is situated within a heterogeneous assemblage” of artefacts, knowledge, material relations, authority, agency and so on (Li, 2007, p. 6; and see Dean, 1999). Programs are governmental assemblages, then, made up of multiple elements that will not have a fully coherent or unitary purpose, but will contain incompatibilities and multiplicities (Larner, 2006; Bulkeley et al, 2007). Indeed, any domain of government—economic, social, environmental—is likely to be populated by overlapping rationalities where hybrid logics, practices and mechanisms co-exist, rubbing up against each other in sometimes complementary, sometimes contradictory ways (M^cGuirk, 2005; Lockwood and Davison, 2010).

While many studies of governmentality have focused on neoliberal aspects of government, this is far from the limit of governmentalities in play (Walters, 2012). When attuned to the hybrid rationalities and heterogeneous assemblages at work in the name of government, governmentality perspectives are highly productive for revealing the multiple rationalities driving the government of urban carbon, the diversity of knowledge forms, devices and techniques through which carbon is related to the city, and the array of mechanisms that align material relations to induce and enable self-governance or ‘the conduct of carbon conduct’ (see Paterson and Stripple, 2010). Certainly, we find such perspectives suggestive for thinking about how carbon is related to the city in a variety of ways that extend beyond the ‘technologies of performance’ of carbon accounting (Dean, 1999; Okereke et al, 2009) and, following this, beyond the habitual association of such technologies with a

marketised/neoliberal rationality (Bumpus and Liverman, 2008). Pursuing this line of thinking opens up the question of the varied political work that governmentalities of carbon might seek to accomplish. Neo-Gramscian thinking further enables this line of analysis, providing additional dimensions and a conceptual enrichment that can work alongside a governmentality approach.

Apart from Gramsci's central notion of hegemony providing a useful way of understanding how politically contested organisational fields—such as carbon governance—might be stabilised (Levy and Newell, 2002), two related dimensions of a neo-Gramscian approach, both of which chime with Foucauldian approaches, are particularly valuable. While Foucault's notion of governmentality as dispersed rule does not commence with the state, it does resonate with Gramsci's notion of *the integral state* as a source of government (Ekers and Loftus, 2008). For Gramsci all institutions, whether formally public or private, which enable the exercise of power by dominant groups are seen as components of the state which, in turn is conceived of as "a complex ensemble of institutions, organisations and forces" (Jessop 1997, p.52). A Gramscian perspective, then, attends to the fluid boundaries between formal state institutions and civic society, between state and non-state actors that combine in shaping institutions of urban governance. It further attends to the way that power can be consolidated and sedimented in institutions habitually thought of as 'outside' of states (Ekers and Loftus, 2008). This view of states (and their powers of rule), not as bounded but as complex and dynamic systems of strategic selectivity, draws analytical attention to the configurations of actors, practices, discourses and relations that are aligned through processes of negotiation and compromise as part generating a collective will to govern (McGuirk, 2004).

Neo-Gramscian thinking gives us a processual understanding of states, in which states are comprised through the enactment of governing. This processual focus—though highly resonant with Foucault's emphasis on the practices of governing—arguably takes us further than the emphasis in governmentality studies on the *intent* of governmental rationalities as discursively reflected in texts, policies, manuals, and the governmental assemblages these leverage (Barnett, 2005; Walters, 2012). From a neo-Gramscian perspective, the capacity to govern cannot be assured by intent, and so analytical attention settles on how that capacity must be accomplished through activating specific conjunctures of social, economic, and

political forces in situated, lived practice (McGuirk, 2004). Thus the focus for analysis is the actual political practices of governing as they occur across state and non-state, public and private domains and how these achieved through practical means (rather than on more abstract imaginaries of governance/power as imposed) (Ekers and Loftus, 2008). The neo-Gramscian approach, of course, also poses the critical questions of how, by and for whom governing is accomplished (see Bulkeley and Schroeder, 2012).

The second dimension of a neo-Gramscian approach that is especially productive for our analysis is the concept of hegemonic projects. Gramsci's notion of the integral state suggests that any unity has to be achieved, can only be provisional and 'is likely to be multi-centred and tied into diverse sets of relations with 'external' actors' (Murdoch and Ward, 1997, p.311). But these alignments are not accomplished through any singular or static governance ordering but rather through dynamic assemblages of 'hegemonic projects' operating in different arenas through multiple pathways. These projects—like governmental programs—enable governing to be achieved 'practically' through the alignment of social and material elements and entities (Li, 2007; Ekers and Loftus, 2008). Such projects can be thought of as aiming to scope out, order and regulate domains of practice towards particular governance objectives (Gramsci, 1971, pp. 400–402).

The likelihood of parallel hegemonic projects resonates strongly with Foucault's notion of multiple governmental programs guided by distinctive rationalities. These projects provide the frames and practical means through which dispersed social and material elements and sites might be articulated together to organise institutional spaces and behaviours in line with specific aims and objectives (see Ekers et al, 2009). This process of alignment is a crucial means through which governing takes shape, constituting (state and non-state) subjectivities, authority and the objects and subjects to be governed (Bulkeley and Schroeder, 2012). To be effective, however, hegemonic projects have to be enacted and attain ideological acceptance in real, material contexts; they are never settled. Rather than focus on the potentialities or intentions of hegemonic projects, a neo-Gramscian perspective on carbon governance requires an understanding of the ways projects are performed and made practically effective and through which they forge alignments of entities, objects and subjects through which the governance of carbon is enacted.

This draws us again, in neo-Gramscian fashion, to investigating the actualities involved in the emergence of new hegemonic projects around the governance of carbon (see Ekers and Loftus, 2008): what is aspired to in particular projects; what capacities are mobilized to enact this; which objects are worked upon; what subjects are enrolled; and through what practices and techniques. In keeping with our intention to extend Rice's (2010) contribution, we might expect emergent hegemonic projects around the urban governance of carbon to operate across state/non-state actors and across diverse and interrelated arenas of the city and its social relations; arenas that reach across the private/individual and the public/collective, the household and the organizational, across everyday life and work and the structural and infrastructural, and across the social and the economic. Likewise, we might expect diverse techniques and mechanisms that extend well beyond neoliberal, marketised techniques of carbon accounting and that go about shaping different and varied forms of relation between the city and carbon.

In the analysis that follows we draw on this discussion to examine the variable ways in which urban carbon governance is being made (and remade) in the Australian city, through multiple political practices and ongoing processes of alignment (of actors, interests, objects, subjects and mechanisms) that extend beyond any fixed notion of the state, and that problematise carbon and relate it to the city in differing ways. Governance thus actively evokes hegemonic projects/governmental programs that are, inevitably, processual; always in the making (see Bulkeley and Schroeder, 2012). Thus we are mindful, first, of exploring the range of techniques and mechanisms, subjects and objects that are acted through and upon in these emergent projects: those that work through market logics and means and through other modalities. Second, we are also sensitised to the way the objects and subjects of governance are constituted in response to particular problematics that are themselves rendered through hegemonic projects or governmental programs. As Ekers and Loftus (2008) remind us, the governing power of states and dominant social interests is habitually produced and reproduced through hegemonic projects and the constituent rationalities and technologies that (selectively) align and assemble diverse entities to achieve their aims (and see Perkins, 2011; Ekers et al, 2009).

3. Ecologies of Urban Carbon Governance in Australia

Australia offers an intriguing context in which to analyse the urban governance of carbon and the ways governance practice brings carbon into relation with the city. Australia's competitive advantage has relied on plentiful cheap energy (especially coal) and location in the lucrative Asia-Pacific energy markets and this presents a difficult profile from the perspective of climate governance (Williams and Booth, 2013). Fossil-fuel based energy production underpins Australia's urban-economic system and a long history of cheap energy, water and land has shaped an urban environment that embeds high emissions lifestyles. National climate governance reflects both the reluctance to dislodge the country's fossil-fuel dependence and a fractious climate politics in which environment and economy are pitted against each other (Curran 2009; Kythreotis, 2012). The policy vacuum created by the lack of a coherent national climate response during the 1990s and 2000s evoked public frustration and led state governments, especially in NSW and Victoria, to take a leadership role through the development of their own climate change strategies and measures⁴. Simultaneously urban-based local governments have emerged as internationally networked climate activists (Bulkeley and Schroeder, 2009; Jones, 2012). Some of the most advanced carbon management strategies have been put in place within the local government sector⁵. Urban local governments' active role in an unsettled landscape of multilevel, overlapping and often short-lived governance efforts⁶ has seen them undertake innovative and experimental initiatives and projects, often in partnership with other LGAs, community and non-government organisations (Zeppel, 2012). Alongside this, an uneven landscape of initiatives by businesses and NGOs has emerged reflecting the plural and particular stake-holder interests of diverse sectors.

The diversity and densely interwoven nature of urban carbon governance represents something of a challenge for both governmentality and neo-Gramscian approaches, which have tended to rely on methodologies that focus on the in-depth exploration and excavation of single cases, institutions, or governmental programs or on identifying wide social forces operating at global to local scales in the constitution of hegemonic projects. Yet our

⁴ The introduction of the Federal Government's *Clean Energy Future* climate change plan in 2011 attempted to fashion a coherent framework, yet is being dismantled by the Coalition government elected in 2013.

⁵ The Australian governance system has no metropolitan-scaled governing authorities. Multiple local governments govern the major cities with more strategic metro-scaled governing responsibilities being in the hands of the various state governments.

⁶ The Productivity Commission (2011) found 230 emissions reductions policies operating in Australia.

contention is that both approaches also signal the importance of attending to the practical, material and mundane ways in which governing is accomplished, such that the techniques, objects and subjects of government are not merely the working through of pre-determined rationalities but come to constitute the project of government itself. This suggests that alternative methodological approaches, less historical in orientation, can also provide insight into the workings of government, by identifying the ways in which (in this case) the urban arena is coming to be regarded as an object to be governed, the techniques and tactics deployed to achieve this, and the forms of subjectivity that are being engendered through such processes. We designed our research methodology to capture the ways in which these objects, techniques and subjectivities were being ordered and sustained across Australian urban contexts, through the use of an audit of initiatives to capture the broad overview of the forms which governmental programs in this arena were taking (the subject of analysis here), as well as to explore in depth the workings of particular programs through examining the micro-politics and practices of case-studies (which we analyse elsewhere).

Our audit of carbon governance initiatives across Australia's capital cities⁷, conducted over 2011 and 2012, surveyed the landscape formed through the workings of programs to govern carbon. The audit revealed a veritable ecology of almost 900 urban-based initiatives contributing to the urban governance of carbon, with diverse lineages, operating on diverse scales, with varying intents and through varying modalities. Initiatives were regarded as undertaking carbon governance where they made explicit mention that their intended purpose was either to reduce the use of carbon-based energy or to develop alternative energy sources. Initiatives were regarded as 'urban' where they identified particular urban communities or entities as in need of intervention or where they sought to undertake decarbonisation on behalf of particular urban constituencies, for example where a local authority might undertake a demonstration project to establish the potential for action within their community.

⁷ The web-based audit covered Australia's state and territory capital cities: Sydney, Melbourne, Brisbane, Perth, Adelaide, Hobart, Darwin and Canberra. We focused on a geographically stratified sample of 57 local government authorities (LGAs) as our initial entry point, and extended from this through a network approach which commenced with NGOs and private sector actors involved in partnerships with LGAs, following through their connections to other initiatives, both alone and in other partnerships. We supplemented this with an additional analysis of NGOs and private sector actors known to be involved in carbon reduction action, extending from this also with a network approach. Finally we undertook an analysis based on key sectors (e.g. tourism, finance) where industry peak organisations and individual corporate actors are known to be active.

Broad coding in terms of their dominant purpose showed that these initiatives operated across the domains of energy (47%), buildings (32%) and transport (21%). Local governments dominated as initiators (57%) of the various schemes, but NGOs (12%), other community based organisations (12%) and corporations (9%) also had a recognizable presence. Local governments were also dominant as initiative funders (65%), with state governments (19%), NGOs (14%), other community-based organisations (11%) and corporations (8%) also active in funding. Nearly 52% of initiatives did not involve partners, but the 48% that did have partners were diversely constituted by local governments (23%) and corporations (22%) and, less often, state governments (16%), NGOs (9%) and community groups (8%). Initiatives predominantly acted upon households (60%), but also targeted their own organisations (33%) and businesses (14%). And they operated primarily through enabling mechanisms⁸ (86%) (e.g. technological innovations, information sharing, education schemes, network building); but also drew on provision mechanisms (34%) (e.g. providing new (usually small-scale) infrastructure, providing a free service); market mechanisms (21%) (e.g. purchase agreements, financial incentives, subsidies); and regulatory mechanisms (17%), though these were very predominantly 'soft' or voluntary forms (e.g. voluntary targets or standards, performance evaluation tools).

Our aim here is not to excavate how these programs are actualised or how they are experienced: this is not achievable through a survey methodology in any case. Rather the contribution of this paper is to consider the multiple forms of governing carbon that are emerging, and how these various wills to improve are manifest through the objects subjected to improvement, the subjects enrolled and the mechanisms and techniques mobilised to enact improvement. To make sense of this ecology in these terms, we adopt a typological approach. We do not intend this categorization to be comprehensive nor to exhaust the possibilities of the emergent governance landscape. We acknowledge that there are multiple possibilities through which hegemonic carbon projects of governmental programs might form. Yet we would argue that not all are equally likely to emerge: there will be selectivity or 'constitutive exclusions' involved (Li, 2007). Hence our categorization arises from the iteration of the theoretical and conceptual precepts of our neo-Gramscian and Foucauldian framework with the empirical findings of our audit. We do not mean to suggest

⁸ Categorisation of mechanisms is derived from Bulkeley and Kerns (2006).

that there are radical disjunctures between the categories of the typology. We take their boundaries to be *relatively* fluid and porous, as befits the concepts of heterogeneous social, material and political alignments, provisionality and accomplishment that inform our understanding of governance. These categories are likely to involve cross-cutting entities and actors, mechanisms and knowledge forms, and sometimes to share objects and subjects, though in distinctive alignments and guided by distinctive rationalities or visions. Yet at the same time, we find that there are distinct ways in which the objects, techniques, and subjects of carbon government are related to one another and to particular agencies that are seeking to govern carbon in Australia's urban context.

INSERT TABLE 1 HERE

The character of each form of governmental program/project is outlined in Table 1, in terms of their actors/initiators, the subjects and objects they work on and through, and the mechanisms through which they are enacted. As Table 1 illustrates, while each may draw on some of the same elements, we find four distinct alignments that are suggestive of different programs/projects operating across this landscape. They are: **(i)** Behaviour change; initiatives aimed to work on individuals, households or organisations seeking forms of self-conduct and new forms of carbon responsibilities and, thus, shaping subjects, constituencies and markets **(ii)** Demonstration; initiatives aiming to test and display technological or social innovations for carbon reduction from which wider learning and/or adoption may result; **(iii)** Transition; initiatives working to imagine and generate alternative policy formations, or material structures, or to enable different lower carbon social formations and practices; and **(iv)** Advocacy; initiatives working with existing maps of policy domains and approaches to improve their efficacy for carbon reduction. These visions however are neither closed, nor fixed. As the products of heterogeneous alignments, their status is in-the-making; they are open to being developed in further directions.

3.1 Behaviour Change

Behaviour change initiatives have an intent or a 'will to improve' on carbon emissions through attempting to 'conduct the carbon conduct' (see Paterson and Stripple, 2010). Such attempts deeply permeate Australia's urban carbon governance. Of all initiatives in our audit, nearly 60% had an identified behavioural change intent. Behaviour change addresses

the problematic of carbon reduction by enrolling urban householders and individuals into processes through which they take personal account of their carbon emissions. These governance initiatives straddle a broad spectrum of mechanisms, though are primarily characterised by enabling mechanisms aiming to educate and inform willing householders, through educative practices such as information provision, both in active (e.g. workshops) and more latent forms (e.g. leaflets, brochures). Though less prominent, market mechanisms such as financial incentives (e.g. subsidies, incentives), and the provision of an array services, particularly carbon accounting mechanisms, also provide material supports to enrolling individual subjects.

In this context, managing carbon behaviour focuses on building a consensus around achieving a generalised reduction in energy demand (and by implication in carbon generation), rather than a systemic shift to renewable and therefore low- or no-carbon forms of energy. The principal focus of households and travellers as the subjects of these initiatives is reflected in the fact that, while initiatives with a behaviour change intent operate across the material domains of energy infrastructure, buildings and transport, they are particularly dominant in those focused on buildings, whereby householders are encouraged to reduce energy demand in their homes, integrating the governmental intent with the material practices of everyday lives. Notably though, where initiatives target the domain of transport, it is *individual* mobility (replacing car use with other individual modes like bicycles) rather than mass transit that is the focus. On the whole, then, behaviour change is a governmental program that seeks to shape conduct using existing rather than new technologies, using expert/technical knowledge to generate information (e.g. via carbon accounting techniques) as a foundation for activities that promote reductions in energy demand rather than, for example, generating new knowledge or technologies that might have a more systemically transformative capability.

Local governments, or groups of local governments, dominate as the initiators of these schemes sometimes supported by other levels of the state, funding the local delivery of these initiatives. In Gramscian terms, we might interpret this as local authorities working to achieve the consent of their residents to help accomplish governmental objectives through behaviour change programs (see Rice, 2010). We also can observe that when local governments extend beyond their conventional involvement in education/information

provision or various forms of regulation, to engage in techniques deploying a market logic (e.g. financial mechanisms or carbon accounting), they strategically enrol additional capacity, particularly through partnerships with private sector actors as they seek to work with new ways of governing behaviour. Notably, our audit suggests that in initiatives with a behaviour change intent, partnerships with the corporate sector are substantially *more* common than with the NGO sector. Nonetheless, local authorities are core actors in this heterogeneously-assembled governmental project, creating a space not only in which to manage urban carbon practices, but to create carbon-reducing subjects (see Agrawal, 2005). In this instance, local governments do not so much assert authority as generate it through residents' embrace of governing of their own emissions. In the Australian urban context, as these knowledges and technologies extend to forms including market logics and accounting techniques, the constituency of the 'integral state' expands selectively to include private sector actors.

As initiatives across Australian cities seek to shape carbon-reducing subjects, these are unlikely to be subjects activated, motivated and enabled to transform the energy and transport infrastructures of the city. The governmental program driven by a behaviour change rationality connects carbon primarily to the energy demands of urban householders and commuters, seeking to manage energy demand, and hence emissions generation, *within* existing energy and transport infrastructure configurations and the existing constellation of interests vested in these configurations. Notably too, in primarily targeting the carbon conduct of households in and around their homes, this hegemonic project in-the-making pays less attention to enrolling business and production interests to the project of governing the conduct of carbon conduct. Rather behaviour change suggests a real form of politics that responds to, and potentially reworks, both the jurisdictional and authority limits of its primarily local government initiators and the contested ground of climate policy in Australia.

3.2 Demonstration

Demonstration is a pedagogical governmentality, governing low carbon urban transitions through experiential, material learning. Through demonstration, an artefact is shown to multiple audiences, often relying 'exhibiting a technological device in action' (Rosenthal, 2005, p.346) or promoting or selling a technology (Markusson et al, 2011, p. 294).

Exhibitions, according to Whitehead (2009) represent how things could and should work in an holistic and material way. As part of a broader set of pedagogies, exhibitions use moral and economic persuasion in conjunction with producing and circulating new knowledge and social networks around a technology. Socio-material engagements, as facilitated by demonstration, are governmental in that they bring practical technologies to a wider audience and, in the process, ‘allow the people to know and thence to regulate themselves’ (Whitehead, 2009, p.72), through facilitating experience and learning.

Governing urban carbon through demonstration is not as widespread in our audit as behaviour change (just less than 10% of initiatives). However its significance as a distinctive governmental program lies in its state-led nature, its partnership approach, technological innovation, and its combination of provision alongside enabling mechanisms promoting self-governance and behaviour change. In our audit, the heterogeneous initiatives engaged in demonstration are most often led by government and are likely to be constituted through partnerships, most commonly between different scales of government: local, state and federal. This often reflects a funding relationship, indicative of Australian local governments’ funding dependence on higher tiers of government. Partnerships with corporate and industry actors are also common, these being much more often involved as partners in demonstration projects than across the audit as a whole. Comparatively there is relatively little involvement from NGO or community actors, reflecting the overwhelming engagement with technological innovation in demonstration initiatives and thus the level of investment required of governing through demonstration.

Reflecting their technological focus, demonstration initiatives have a strong focus on the materiality of buildings⁹. Indeed the subject of governance in demonstration initiatives is most often the initiating (predominantly government) organization itself, and particularly its premises; this being twice as likely in demonstration initiatives than across the audit as a whole. Thus, as a governmental program, demonstration is dominated by government-led initiatives, operating on government organisations and particularly deploying government premises as the material vehicle of demonstration (e.g. low-carbon local government office buildings or amenities, government-sponsored demonstration homes). However,

⁹ Notwithstanding a small number of well-funded demonstration initiatives focused on energy infrastructure such as the Federally-funded SmartGrid Smart City initiative.

highlighting the processual nature of the state, the prominence of partnership with private sector actors points to the centrality of private sector capacities (for example expertise, technological innovation, finance, or additional services for calculating initiatives' benefits) to realising government objectives for governing itself (self-governance) as well promoting wider adoption of preferred technologies.

Demonstration initiatives are orchestrated by mechanisms of provision, especially of new forms of infrastructure (e.g. solar panels on buildings, LED lighting on public amenities), much more so than across the audit as a whole. This provision provides a means of testing out technological innovations as well as the capacity to build consensus on the legitimacy of such innovations through leading by example. Enabling mechanisms were also very widely deployed in nearly all demonstration initiatives. Though, in contrast to the less direct means of enabling that characterise behaviour change (eg information sharing), they tended to enable through direct means such as furnishing technical capacity and expert knowledge. Through these direct forms of provision and enabling, then, demonstration works as a driver of technological innovation; being twice as likely to involve technological innovation as initiatives across the audit. Such innovation can create new patterns of production and consumption at demonstration sites and generate new expert knowledge and technological capacity (indeed demonstration initiatives were twice as likely as initiatives across the audit as a whole to involve generating information and research) but it may also create new norms to induce wider organisational adoption of technological interventions. However, with some notable exceptions¹⁰, demonstration initiatives appeared largely self-contained and generally involved limited explicit attention to how to make demonstrations work within wider infrastructural or social networks (see Moloney et al, 2010). The material demonstration itself, reinforced by new knowledge and technical capacity, is relied upon to legitimise the innovations, leaving this mode of urban carbon governance vulnerable to being unable to cohere the social and material alignments needed to realise governmental objectives.

¹⁰ Here we refer to a small number of federally-funded urban demonstration projects such as *Solar Cities* and *Smart Grid Smart City* which have explicit briefs of testing how technological innovations can be shaped for wider implementation. Nonetheless, the emphasis in these projects is on technological and market implementation rather than the social challenges of implementation.

Demonstration, then, relates carbon to the city technologically, deploying technological intervention as the means to reduce emissions. Demonstration seeks both to normalise the integration of both energy-efficient and renewable energy technologies through their testing and exhibition. Neo-Gramscian thinking leads us to expect hegemonic projects, like governmental programs, to be selective, enabling some interests, instruments and objectives to be more easily drawn together and institutionalised than others (McGuirk 2004). Indeed, this is the case here, whereby the particular technological mode of relating carbon to the urban is inducing a selectivity around the sites, subjects and partners involved: shaped at least in part by the investment demands of significant technological demonstration capacity. Connecting to demonstration projects may allow actors to leverage strategic advantage or seek to generate political capital. While the wider learning that might be leveraged from the materiality of demonstration and new knowledges initiatives may generate might be open-ended, the strategic advantages to be accrued currently remain centred on state and private sector actors who dominate in demonstration initiatives. Arguably, these initiatives are crucial to establishing the market viability of new carbon-reducing technologies, and stand to yield significant strategic advantages to the private sector actors involved. Again this suggests that meeting the governmental objectives of demonstration, and cohering the social alignments necessary to this, is likely to require techniques to build the legitimacy and wider societal benefits of the technologies at the heart of demonstration initiatives.

3.3 Transition

As with demonstration, initiatives aimed at governing through transition made up 10% of our audit, yet what distinguishes this as a governmental program the holistic vision for transition to low carbon cities. We can differentiate two sub-types of transition initiatives undertaken by distinctive sets of actors and guided by distinctive visions. First are community-based efforts to transform daily life and its energy requirements such as the Transition Towns movement. These are supported by a loose network of community-based organisations in which information is shared and a common approach used as a foundation for collective local action. These initiatives seek to bring into being a 'proto low carbon society', in which new forms of social organization and social relations are built around lowering the use of carbon resources. The second are purposeful, large-scale interventions

like the Federally-funded *Solar Cities* program. This program supported a series of urban-based consortia of local governments with energy, finance and land corporations to trial the large-scale urban integration of solar energy, new grid-based technologies, alternative technologies for electricity storage and consumption, and energy efficiency measures, to showcase efficiency gains and test social and market viability. These interventions tend to be based on public-private partnerships, with a strong state presence. Federal government started a third of all of these initiatives, with business and local government as co-initiators and many actors as partners. Here, we can see a form of ‘proto low carbon economy’ emerging, in which initiatives aim to bring forward new forms of market organization and transactions, business models and forms of economy that are built on alternative systems of energy provision. In both sub-types, the focus is on facilitating shifts—both small and large scale—towards establishing alternative hegemonies based on renewable energy, new forms of energy services to manage demand, and related low carbon living.

Unlike in the governmental programs of behaviour change and demonstration, local governments are not key drivers of transition initiatives. While federal government-initiated, private sector-driven transition initiatives can be understood as the dominant type of transition initiative, numerically at least community actors are the more prominent initiators through such manifold initiatives as Transition Towns and 100% Renewables¹¹ which are replicated in urban areas across the country. For transition as a governmental program, across both sub-types, partnership is absolutely central, reflecting initiatives’ heterogeneous forms and holistic visions and the array of actors, capacities and material practices that need to be aligned to engender these aspirations. All levels of government are engaged as important partners and, while still playing a minor role, transnational networks, foundations, and corporations are involved more often than in the audit as a whole. Not surprisingly given the governmental intent, the dominant material focus—the object of governance—is energy infrastructure. As the scope of transition governmentalities might suggest, the main subjects of governance are households, yet businesses are also a substantial focus. And, unlike behaviour change or demonstration, transition—taken as a set of initiatives—combines a focus on both technological and social innovation in households and business practices.

¹¹ A community organising campaign aiming to connect and support local groups working towards a renewable energy future.

As might be intuited from their strong basis in community organisations, regulatory mechanisms are rarely used in transition initiatives. Market mechanisms are used to some degree, in the form for instance of subsidies. But it is enabling mechanisms that, again, are overwhelmingly deployed, though in distinctive patterns that map onto the two sub-types identified initially. Community-driven initiatives, reflecting the web-like form of their organisation and connection, deploy outwardly focussed enabling mechanisms such as information provision, education and networking facilitation. By contrast, the government-supported, larger-scaled transition initiatives deploy enabling, but in combination with provision mechanisms. They use technological enablement, based on generating expert knowledge and demonstration to establish and promote the (social and market) feasibility of new energy systems and they provide new technologies, systems and services (eg smart tariffs, solar hot water, EV charge points).

Transition, then, is a diffuse, deeply heterogeneous governmental program. It relates carbon holistically to the city through social practices and technological systems, and across the social and economic activities that embed urban energy use (and hence carbon generation), in households and their everyday lives and transport practices, and in businesses and their production and organisational practices. The rationality of transition is transformative yet, as we should anticipate, this does not suggest a coherent, singular governmental program (see Li 2007). Some aspects of transition suggest the recasting of technological, market and accumulation models to enhance the legitimacy of a low carbon economy. Other aspects suggest building consensus around a more radical recasting of the basis of social and exchange relations and systems of production (North and Longhurst, 2013).

3.4 Advocacy

Advocacy represents a distinctive governmental program whose governing object is urban carbon governance itself, characterised by attempts to change public and political framings of low carbon transitions alongside more direct attempts to secure specific policy settings. Nearly a fifth of all initiatives in the audit included an advocacy intent. The diverse initiatives that constitute this program work on the affective/emotive, seeking to shift the 'hearts and minds' of both policy-makers and citizens, while also working with existing policy domains and approaches to enhance their carbon reduction efficacy (see Giddens, 2009).

Not surprisingly, advocacy is most pronounced in initiatives focused materially on energy infrastructure, compared to the realm of buildings or transport. The hotly contested field of energy policy in Australia may account for this (Daley et al, 2011). Distinct from our other three governmental programs, and highlighting the dispersed, 'beyond-the-state' nature of rule in of carbon governance (Bulkeley and Schroeder, 2012), advocacy initiatives are primarily 'non-state' in character, being initiated by community and NGOs at much higher levels than across the audit as a whole. While state and federal governments are largely absent, as might be expected, local government does play a role both as an initiator and partner.

A feature of the large majority of initiatives involving advocacy is partnership, suggesting that capacity and authority to govern is derived from collective rather than individual action. One example is the Climate Action Network which focuses on leveraging climate change action through community engagement, campaigning and lobbying elected officials. Notably though, these partnerships are primarily uniform in nature, bringing together NGO and community groups, sometimes with local governments, rather than drawing together a more diverse set of interests. Partnership then is largely about gathering momentum and scale, forging a political constituency behind a preferred issue framing or policy approach, rather than drawing in additional capabilities and capacities. Households are overwhelmingly the subjects of this form of carbon governance. This suggests a strong 'consciousness-raising' dimension aimed to mobilise householders as active political subjects lobbying for, for instance, higher renewables targets, renewable energy futures, or involved in wider climate action campaigning. This complements (and indeed overlaps with) initiatives aimed at producing active carbon-reducing subjects. And these initiatives involve forms of governance that seek to promote technological *and* social innovation, positioning carbon reduction as requiring the technological transition and changes to social practice associated with embracing renewables, and the perhaps more demanding changes to social practices associated with demand reduction.

Perhaps not surprisingly, the dominant governance mechanisms engaged by advocacy initiatives are enabling, with very few initiatives involving market or provision mechanisms, and a very small number engaging regulatory mechanisms (e.g. voluntary targets or performance/evaluation tools). Reflecting the notion of building a political constituency to

effect enhanced carbon-reduction policy settings, these initiatives engage in explicit campaigning and policy influence techniques along building networks far more commonly than is found across the audit. Yet the uniform nature of the partnerships that activate this form of governance suggests challenges for the policy advocacy project in terms of building a wider base of support to build the legitimacy of the policy preferences.

4. Conclusion

To conclude, we return to our opening questions: what is being sought through the governance of carbon in the city, how are these things being rendered and how, then, does carbon come to matter in the city? The neo-Gramscian and governmentality approach we deploy highlights the variety of political work being done through the urban governance of carbon in Australia, and the multiplicity of ways this is being driven. This approach problematises any conception of the emergent governance landscape as a unified policy space of integrated actions and aspiration, or indeed as a series of isolated initiatives. Rather it reveals an ecology of projects and practices and a series of emergent governmental programs or hegemonic projects in-the-making that relate carbon to the city in distinctive (if related) ways. We avoid reductive analysis that, in revealing neoliberal modes of connecting carbon and the city, obscures the co-presence of other means and ends of government. Rather our approach enables us to attend to the varied practical and material means—the objects, subjects and mechanisms—through which governing is enacted and is entwined with governmental programs/hegemonic projects. It understands these programs/projects as being formed not only in the abstract, through pre-determined rationalities, but in their workings. The objects, subjects and mechanisms through which governing is enacted are part of the governmental program; they are constitutive of its formation, not just manifestations of it. Our approach thus brings together questions of the how and why of governing, advancing understandings of the dynamics, multiplicity and practical enactment of urban carbon governance and its emergent programmatic character.

Behaviour change is shaping a politics of responsibility aimed to make carbon ‘everyone’s problem’, not simply a matter for government, energy companies, or business more generally. This ‘development of a gathered will’ (Hinchliffe, 1996, p.6) enacts a governmental

logic, shaping and enrolling new forms of carbon conduct through technologies of performance and agency (Dean, 1999). Far from being symbolic, in its association with carbon behaviour change becomes an important form of governance, though its political logic is one among many. *Demonstration* allows the state to make practical and to legitimise its commitment to governing carbon and to test the potential of technological interventions, within the 'safe space' of demonstration projects. This does complex political work for governments. Federal and state sponsorship of major energy demonstration projects socialises the testing of the social and market feasibility of these technologies. Moreover, enacting demonstration shapes the new institutional and socio-material alignments through which larger scale energy infrastructure transitions might be accomplished. Meanwhile, demonstrating low carbon technologies via government facilities provides legitimacy and authority to the drive to conduct the conduct of others and so opens up a strategic space to intervene in the city more broadly.

Transition involves attempts to will into existence 'proto-low carbon economy' and 'proto-low carbon society' to work on shaping the alignments and subjects to advance these different visions of low carbon futures. The political work at play here revolves around how climate change can be made into 'business as usual'—by generating forms of competitive market organization, business models and economy built on alternative systems of energy provision—or, alternatively, how addressing climate change might demand thorough going social transformation through more collectivised, cooperative responses, including differently structured forms of markets, transactions and economy. In the new urban politics of low carbon transition, the key questions are whose visions of the low carbon city will be allowed to count, and what socio-material alignments and subjectivities might need to be shaped to enable transformative visions to be accomplished. *Advocacy*, in many respects, undertakes the conventional political work of framing an issue and keeping it on the agenda. This has been particularly important in the contested context of Australian carbon governance over the past two decades. However, while advocacy involves the fashioning of political constituencies, its activation primarily through NGOs and community-based groups suggests that it remains somewhat marginalised from other forms of governing carbon, the social and material alignments these evoke and the diverse mechanisms they engage. This suggests it creates a relatively limited space for intervention in the city.

This leads us, finally, to speculate on how the emergent practices and programs of carbon governance might be implicated in reproducing existing governance orderings *and* how might they be capable of contributing to the shaping of new (potentially transformative) political orderings of governance (see Perkins 2011). Across the inter-related governmental programs or hegemonic projects in-the-making we identify, we can recognise political work that might reproduce particular logics and the selectivity of particular social interests in the city (e.g. those of state authority and energy corporations via large scale technology-focussed demonstration projects). Yet we can also recognise challenges to what it is that governing the urban should take into account (e.g. carbon conduct, shaping new political constituencies, modelling new socio-technical relations around energy via demonstration). Likewise, we can see both the mobilisation of individualised social subjects being enrolled into new forms of carbon conduct (e.g. through accounting techniques used to drive householders' behaviour change) and we can see the mobilisation of collectivised, community subjects being enrolled in shaping new proto-low carbon societal relations (e.g. via community-based Transition initiatives). Finally, we can see the embedding of a carbon economy through the institutionalisation of competitive market logics and 'accumulation by decarbonisation' (Bumpus and Liverman, 2008) (e.g. via the creation of new markets and business models around alternative systems of energy provision). Yet we can also see the construction of other forms of carbon economy and the shaping of other kinds of markets that might recirculate resources within the urban economy or that enact forms of social economy (e.g. via Transition initiatives around local food).

Australia's emergent landscape of urban carbon governance involves diverse political work, with the work done by each distinctive governmental programs being dependent on the others. Our approach reveals the multiple and emergent nature of the governance landscape and thus the fertility of the political moment. The landscape is both reproducing existing governance orderings *and* contains openings—via emergent hegemonic projects—that might produce more transformative political orderings: not least because of the demands and politics the low carbon subjects being invoked here might be empowered to pursue and because of the porous nature of the 'integral state' that is open to reconfiguration as new governmental programs and enacted and sedimented. Thus further detailed investigation of the diverse work that governing carbon in the city does and what

effects is has, and of how, by and for whom is governing being accomplished, is essential as cities strive to enact urban low carbon transitions.

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Table 1: Characterization of governmental programs/hegemonic projects in the making
(Key categories are bolded where they are found at a higher proportion than across the sample as a whole)

	Behaviour change	Demonstration	Transition	Policy Advocacy
Actors/entities as initiators and partners	<ul style="list-style-type: none"> • Predominantly Local Government • Partnerships, espec. between Local Governments & Corporations • Stronger involvement of Federal Government • Less NGO involvement 	<ul style="list-style-type: none"> • Dominated by state actors, predominantly Local Government • Partnerships espec. betw. levels of state • Public-private partnerships • Less NGO involvement 	<ul style="list-style-type: none"> • Predominantly community organization partnerships in small scale initiatives, & • Largescale public-private partnership, involving all levels of government, espec. Federal • Strong NGO involvement 	<ul style="list-style-type: none"> • Predominantly NGOs and community-based organizations, • Minimal Federal or State Government or Corporation involvement • Partnerships, espec. with other NGOs & CBOs, & Local Government
Subjects/spheres worked upon/through	<ul style="list-style-type: none"> • Predominantly Households & Individuals • Some focus on Businesses, espec. where carbon accounting involved • Social Innovation & Technical Innovation • Minimal emphasis on Environmental Justice 	<ul style="list-style-type: none"> • Predominantly initiating organization • Less focus on households and businesses, • Technical Innovation • Some emphasis on Social Innovation • Minimal emphasis on Environmental Justice 	<ul style="list-style-type: none"> • Predominantly Households & Individuals • Some focus on Businesses • Technical Innovation and Social Innovation • Minimal emphasis on Environmental Justice 	<ul style="list-style-type: none"> • Predominantly households • Some focus on own organisation and businesses • Social Innovation and Technical Innovation • Little emphasis on Environmental Justice
Objects/material worked upon/through	<ul style="list-style-type: none"> • Predominantly Buildings, espec. energy efficient materials & design, building integrated renewable energy • Energy Infrastructure, espec. renewables & demand reduction • Where Transport is worked on, individual motorized transport 	<ul style="list-style-type: none"> • Predominantly Buildings, espec. energy efficient materials & design, new-build & retrofitted energy efficient technologies, & building-integrated renewable or low carbon energy • Where Energy Infrastructure is worked on, renewables, street lighting & low carbon energy supply • Where Transport is worked on, municipal fleets, mass transit 	<ul style="list-style-type: none"> • Predominantly Energy Infrastructure, espec. renewables • Where Buildings are worked on, espec. building-integrated renewables, retrofitted energy efficiency technologies • Little focus on Transport, but predominantly motorized individual transport 	<ul style="list-style-type: none"> • Predominantly Energy Infrastructure • Where Transport is worked on, espec. mass transit • Little focus on Buildings, but predominantly demand reduction and energy efficiency
Mechanisms	<ul style="list-style-type: none"> • Predominantly Enabling, espec. education schemes, audits 	<ul style="list-style-type: none"> • Predominantly Enabling, espec. demonstration, technical 	<ul style="list-style-type: none"> • Predominantly Enabling, espec. expertise/advice, information 	<ul style="list-style-type: none"> • Predominantly Enabling, espec. building networks, policy advocacy,

	<ul style="list-style-type: none"> • Less emphasis on building networks, campaigning, influencing policy • Some use of Market mechanisms, espec. subsidies, purchase agreements, incentives • Some use of Regulation mechanisms • Some use of Provision mechanisms, espec. free services 	<p>innovation, information generation, best practice</p> <ul style="list-style-type: none"> • Less emphasis on information sharing, advocacy, influencing policy • Some use of Provision, espec. infrastructure • Some use of Regulation, espec. voluntary targets, certification • Some use of Market mechanisms, espec. subsidies, revolving funds, loans 	<p>sharing & generation, building networks, influencing policy, advocacy</p> <ul style="list-style-type: none"> • Some use of Market mechanisms, espec. subsidies • Stronger use of Provision mechanisms • Some use of Regulation mechanisms 	<p>campaigning, travel demand management</p> <ul style="list-style-type: none"> • Minimal use of regulation, market or provision mechanisms
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