

---

# The work of policy: actor networks, governmentality, and local action on climate change in Portland, Oregon

---

Ted Rutland, Alex Aylett

Department of Geography, University of British Columbia, 1984 West Mall, Vancouver, BC V6T 1Z2, Canada; e-mail: tedrutland@yahoo.com, alex.aylett@gmail.com

Received 16 August 2007; in revised form 31 January 2008

---

**Abstract.** To develop and implement public policy requires work. In this paper, we examine some of the work involved in a pathbreaking climate change policy adopted in Portland, Oregon. Seeking to address shortcomings in existing studies of local environmental governance, we focus particular attention on how climate change became a political priority in Portland, how a particular representation of local carbon dioxide emissions was developed in the process of public consultations, and how the local state attempted to achieve its adopted policy objectives by enlisting the self-governing capacities of its residents. To carry out such an analysis, we draw on both actor-network theory (ANT) and governmentality. The first approach offers an understanding of how collective priorities emerge as different actants learn how to move toward their goals by working together, and also suggests how subjects and objects are reshaped by their enrolment in such configurations. The second approach offers a more precise understanding of how the state attempts to achieve its objectives—once they are established—by conducting the conduct of its citizens. Brought together, we argue, ANT and governmentality provide an incisive approach to questions of local environmental governance, and to broader political concerns as well. As each approach addresses well-cited shortcomings of the other, the combined approach developed in this paper could be deployed in many studies that examine the emergence of political priorities and the capacity to achieve them.

## 1 Introduction

In 1993 Portland, Oregon, became one of the first cities in the world to address climate change by committing to specific, citywide reductions in greenhouse gas emissions. In a policy entitled the Carbon Dioxide Reduction Strategy, the city outlined its intention to reduce carbon dioxide emissions by 20% of 1990 levels by 2010, primarily by channelling funds toward residential and commercial energy efficiency projects. By 2005, although unlikely to reach its initial emissions reduction target, Portland had succeeded in reducing its per capita emissions by 12.5% and, despite 27% population growth, managed to stabilize its overall emissions at 1990 levels (City of Portland, 2005). Perhaps more significantly, Portland's initiative has inspired other cities to make similar moves. By 2007, in response to appeals from cities like Portland and Seattle, over 500 US cities had agreed to cut local carbon dioxide emissions by 7% of 1990 levels by 2012.<sup>(1)</sup> The numbers involved are partly symbolic: they mimic the US's now-abrogated commitments in the Kyoto Protocol, the major international agreement on climate change. Indeed, the adoption of municipal climate change policies is intended explicitly to exert pressure on a national government that is viewed as unresponsive to its citizens' ecological concerns.<sup>(2)</sup>

<sup>(1)</sup> An up-to-date list of the cities involved in the US Mayors' Climate Protection Agreement can be found at <http://www.seattle.gov/mayor/climate/default.htm#who>.

<sup>(2)</sup> Seattle mayor Greg Nickels describes the push for municipal climate change policies in precisely these terms. "Mayors across America are making it clear: we're not going to wait for the federal government to do something to prevent the production of greenhouse gases", he said. "We're going to step up and provide the leadership at the local level, city by city" (Kyriakou, 2005).

---

Portland's success (relative to other cities and states) in reducing carbon dioxide emissions can reveal important insights about the processes involved in developing and implementing local environmental governance (LEG) programs. Existing LEG research has demonstrated some of the challenges such initiatives encounter: limited resources (Betsill, 2001; Meadowcraft, 1999), insufficient jurisdiction (Flynn, 2000; Mercer and Jotkowitz, 2000), and conflicts with other, more highly prioritized municipal programs (Lake, 2000). The most frequently identified challenge concerns the difficulty of reconciling the interests of various stakeholders behind a particular environmental policy (Jörby, 2000; Selman, 2000), with business interests often articulating vehement opposition (Adger et al, 2005; Parto, 2004; Worthington et al, 2003).

The challenges identified here are no doubt important ones. However, we find existing research limited in at least two respects. First, although it aptly highlights the contending interests involved in local environmental politics, it consistently takes the *object* of contention—that is, the local environment—for granted. What gets overlooked, as a result, are the potentially conflicting ways of representing the environment, and the significant political work involved in settling precisely what constitutes the object to be governed (cf Braun, 2002; Mitchell, 2002). From carbon footprint analysis to emissions inventories, there are multiple ways of understanding and drawing boundaries around the object of LEG, and they do not all yield the same results. Before policies can act on the 'local environment', the latter must be defined. In Portland's case, this policy work was especially important, as there existed no established way of representing local carbon dioxide emissions, and in fact major emissions that might be considered 'local' were left unmeasured (and so ungoverned). Second, although some existing research documents the failures of local environmental programs that call on residents to participate or change their behaviour in some way, the strategies used by local governments to achieve their objectives in these cases either are not examined, or are considered solely in terms of how environmental problems are framed (Lindseth, 2004; Slocum, 2004a; 2004b). What gets ignored here are the broader strategies that modern governments can employ to conduct the conduct of their citizens and achieve their objectives while governing in a liberal fashion (cf Rose, 1999). This policy work, too, was important in Portland's case, as its initiatives aimed quite explicitly to reduce local carbon dioxide emissions by changing particular behaviours—and seems to have been successful in doing so.

In this paper, we examine the significant policy work entailed in Portland's Carbon Dioxide Reduction Strategy. Aiming to address the limitations of LEG research, we explore not only how various interests came into alignment behind the policy, but also how a particular representation of the local environment emerged in the process. Further, we evaluate not simply *whether* Portland was successful in shaping the behaviour of residents, but also the particular strategies and techniques it used to do so. To understand policy work in this broader sense, we draw on two influential bodies of work. First, to frame our analysis of the processes through which an array of conflicting political interests and various potential ways of governing and representing the local environment came to be settled behind Portland's particular governance configuration, we draw on recent work on actor-network theory (ANT). Developed initially by Bruno Latour, Michel Callon, and John Law, ANT provides an approach to studying how social orderings are contingently achieved through the enlistment of human and nonhuman (eg animal and material) 'actants' into relationships called 'actor networks'. The term 'actant' is used instead of 'actor', because the ability to act is considered an outcome of relations, rather than an inherent property of certain—typically human—entities. What makes this approach unique is that it compels the analyst to account for the ways various actants are reshaped by their enlistment in

---

networks of relations, and, more significantly, how nonhuman entities contribute to social (or socionatural) orderings. Second, to orient our study of the strategies and techniques Portland put to work to shape the behaviour of its residents, we turn to the literature on governmentality. Sketched by Michel Foucault, and developed by Nikolas Rose, Mitchell Dean, and others, governmentality provides a framework for studying how modern governments try to achieve their objectives by insinuating specific ways of thinking (political rationalities) in their citizenry through programs Rose calls “technologies of government.” What this approach provides our study is a way of examining how political power operates by reshaping the values and principles of the political subject (rather than through brute force). Brought together, we think ANT and governmentality can address some of the limitations of existing LEG research, and reveal crucial insights about the policy work involved in Portland’s climate change efforts.

The paper is organized into three substantive sections. In section 2, we review the relevant literature on ANT and governmentality, outlining some of the similarities and differences between the two approaches and suggesting how they might be used together to study LEG programs. Next, in section 3, we begin our Portland case study, examining how a diverse array of interest groups came to see reductions in carbon dioxide emissions as beneficial. Drawing on ANT, we draw attention to the specifically nonhuman energies that partly propelled the policy work, as well as the way a particular representation of local carbon emissions emerged in the process of network formation. In section 4, we push our case study further, examining how Portland communicated and sought to implement its policy objectives by shaping the conduct of its residents. Building on a Foucauldian analysis of governmentality, we investigate how the city attempted to create continuity between its environmental priorities and the priorities of other individuals and groups within its population.

As will become clear, we use the two theoretical frameworks in succession to look at different periods in Portland’s history: ANT in the period leading up to the adoption of the reduction strategy; governmentality during the policy’s implementation. Dividing our analysis in this way is a simplification that allows us to demonstrate more clearly the particular strengths of each approach, and the merits of bringing them together to address different aspects of the work of policy. The risk of this division is that it may give the impression that the interlinked and ongoing processes of constituting the local environment and the making of political subjects are somehow distinct or historically separate. It needs to be remembered that the reciprocal relationship between the constitution of environmental objects and environmental subjects is ongoing and interwoven—not static and distinct. Attention to both these processes allows us to exceed the bounds of typical LEG research and provide not just an explanation, but also a rigorous *critique* of the policy work involved in Portland’s 12.5% reduction in carbon dioxide. To that end, we conclude with observations about the limitations of Portland’s approach, as well as some reservations about the use of governmentalizing power to achieve environmental objectives.

## **2 In concert: governmentality and ANT**

The concept of ‘governmentality’ emerged as the unifying theme of a series of lectures that Foucault gave at the College de France, late in 1978. Still moved by the desire to understand how individual experience can be shaped by institutions of power and the types of knowledge that they create and use (see his comments in Foucault, 1981a), he turned his attention to the ways in which the modern state facilitates the creation of a self-regulating individual in order to maintain itself and achieve its aims. A continuation of ideas introduced in the first volume of *A History of Sexuality*, his work on governmentality is his most explicitly political work. After his detailed examinations of

the operation of power in medical and penal systems, he broadens his scope here to deal directly with the state. In this section, we will review governmentality in more detail before turning to a discussion of ANT, which brings different, and complementary, theoretical concerns to our subsequent analysis of Portland's climate change policy.

Governmentality is based in part on a genealogy of the term 'economy'. Foucault looks at how this term—which originally described the practices through which the head of a family controlled and cared for the well-being of those he or she was responsible for—came to describe the application of these principles to the nation-state as a whole, and the creation of a more intimate relationship between the ruling and the ruled. In contrast to the singular and sovereign power of the prince, governmental power is distributed across a multitude of self-governing actors at many different levels (eg, family, church, or workplace). Moreover, unlike the rigid structures of sovereign power which act *upon* that which is ruled, governmentality acts from *within* and is enforced by the subjects themselves. This form of self-policing is put in place by creating a congruence between the interests of the state and the interests of the family, group, or individual. By facilitating the identification of the interests of the state with those of the individual, the state's aims come to be internalized by those who are subject to them (Foucault, 1991).

With this new approach to governing, as Dean (1999, page 485) explains, "power becomes dispersed, omnipresent, and facilitative, rather than centralized, occasional, and repressive." At the same time, the object of government shifts away from the simple assertion of sovereignty and ownership over land and inhabitants; instead, we now find the multifaceted task of governing a complex "imbrication of men and things" (page 485), which includes the physical, social, and natural forces that can affect them (eg, disease, storms, famines). Rather than a forceful or violent assertion of authority and ownership, good governance is the art of managing the interactions between these elements in such a way that they may grow and prosper in a desired manner. It is to clarify this point that Foucault introduces the by now well-known example of the captain of a ship. Governing a ship, he writes, consists of "that activity of establishing a relation between the sailors who are to be taken care of and the ship which is to be taken care of, and the cargo which is to be brought safely to port, and all those eventualities like winds, rocks, storms and so on" (Foucault, 1991, page 94). But the captain is also the ultimate authority, sovereign of their vessel.

As Peter Miller and Nikolas Rose (1990) point out, the constant and central verb in the above example is 'to care for'. Both the captain and Foucault's final allegorical figure of the shepherd that he develops in two later and less widely read lectures (Foucault, 1981a; 2007, chapters vi–vii) exercise control through the action of 'caring for' their subjects. The shepherd, Foucault argues, comes to control his flock because he has clear and precise knowledge of each of its members. He uses this knowledge to attend to and care for each of them in a way that allows him to guide them as he wishes. Thus, the creation and use of specific forms of knowledge becomes central to the exercise of governing. Knowledge is central both because it helps the governing body to properly orchestrate the various elements of the state, and because it is the primary vehicle through which the state spreads its particular priorities and goals among the population (something which perhaps applies better among people than sheep).

For the modern state, this knowledge comes from the emerging science of the state known as 'statistics', whose subject is another recently formed concept, that of 'population'. Because it is now able to measure the populations which it governs, and to quantify the different variables that affect it (eg births, deaths, epidemics, wealth, poverty, employment), government can act on the population either directly through large-scale campaigns or indirectly "through techniques that will make possible, without

---

the full awareness of the people, the stimulation of birth rates, the directing of the flow of population into certain regions or activities” (Foucault, 1991, pages 96, 100).

Foucault describes this as the creation of a set of completely new tactics and techniques, but he never clearly explains how these techniques function. Commenting on this, Miller and Rose (1990) clarify by mapping how knowledge, more than simply reporting back objectively on the outside world, interprets and defines its object in a way that facilitates certain courses of action and not others. Ways of recording a population’s income, for example, make possible both taxation in general, and the different treatment of specific groups as defined by their income status (including access to specific services, preferential taxation rates, or forms of discrimination). Far from being neutral or objective, knowledge “is itself a way of acting upon the real, a way of devising techniques for inscribing it (birth rates, accounts, tax returns, case notes) in such a way as to make the domain in question susceptible to evaluation, calculation and intervention” (Miller and Rose, 1990, page 7).

Crucially, when these forms of knowledge are adopted by others, they carry with them their particular methods of interpreting reality. When individuals come to view themselves and their goals according to the same metrics as the state, and base their actions on these metrics, they become part of the network of self-regulating actors that is at the heart of the practice of governmentality. This ‘translation’ of interests, a term that Miller and Rose borrow from Callon and Latour, binds people together through a shared perception of reality and through the codes of conduct that seem to flow naturally from it. Governmentality, as Foucault articulates it, is a regime of control that substitutes the persuasive normalizing influence of specifically designed and disseminated forms of knowledge for physical force and military policing of the state.<sup>(3)</sup>

Foucault’s analysis of the power of the modern state can address only one part of the ‘work’ of government policy. It suggests, quite compellingly, how political institutions can achieve their policy objectives by creating resonances between the interests of the state and the interests of individual subjects. But this tells us very little about how the interests of the state emerge. At issue here is both the process of forming political priorities and the role of political agency in this process—neither of which receive much attention within the framework provided by governmentality. Foucault, and many authors inspired by his work, characteristically attend to the way in which a broad array of elements interact, define, and reinforce one another; it is the relationship among synchronous elements that matters. But missing here is an attention to *diachronous* relations: how the discourses that bind the elements emerged over time, and who (or what) was involved in producing them. It looks at how a given piece of music comes to be performed by multiple actors, but tells us little about how the piece was chosen or composed. As Law (1994, page 107) argues, critiquing Foucault, “discourses, so to speak, perform and instantiate themselves. There is nowhere else to go. Nothing else animates them. There is no puppeteer. Instead, they animate themselves.” While, as we will see, governmentality offers crucial insights to our analysis of the implementation of Portland’s climate change policy, to achieve a more complete understanding of local environmental governance we also need to examine the work entailed in developing new policies, paying close attention to how governing priorities emerge, how objects of government are constituted, and how different actants are involved in establishing both. To achieve this, we will need to move beyond governmentality and engage with the body of work called ANT.

<sup>(3)</sup> Foucault seems to envision these as distinct historical periods in the evolution of the European state, and, although it falls outside the scope of this paper, the current political climate shows that there is a pressing need to discuss how physical and intellectual control work in conjunction with one another.

ANT, in our view, adds a unique, and complementary set of analytical tools. Given the now-substantial secondary literature available (cf Callon and Latour, 1995; Latour, 1999a; 2005; Law, 1992; 1999; within geography see Murdoch, 1997; Whatmore, 1999), we will focus our remarks on the way ANT addresses three issues: the emergence of political priorities, the making of objects of government, and the character of political agency. ANT, as an approach to inquiry, makes no specific claims about how the world operates, but instead suggests specific ways to trace the activities of particular entities to reveal how worlds are made.<sup>(4)</sup> ANT's most fundamental assumption is that entities and their attributes are an effect of their relations with other entities, rather than inherent properties (Law, 1999). Relevant entities, which are termed 'actants', might include human beings, nonhuman animals, computer programs, a piece of legislation—literally anything (Barnes, 2005). The term 'actant' is used to unsettle conceptually the assumption that the capacity for intentional action is inherent, and typically only in humans; in ANT's contrasting view, to be an 'actor' is forever an achievement, the result of forging enabling relations with human and nonhuman others. It is this recognition of the role of nonhumans in shaping human capacities and constituting socionatural worlds that is most often emphasized in ANT-inspired work (cf Callon, 1986; Franklin, 2006; Whatmore, 1999). Here, however, even the seemingly obvious distinction between human and nonhuman can only be treated as a shorthand, as the 'human' is an *outcome* of various material, technological, and informational networks which define its boundaries, identities, and capacities, and which it can never fully master (Latour, 1993; see also Haraway, 1991; Wolfe, 2003). The human, whether an individual or a collective (ie a 'society'), is the result of boundary work in materially heterogeneous networks of relations. So, too, is the nonhuman. The lesson here, for our purposes, is that human subjects and nonhuman objects are defined by their relations; if we associate abiding meanings or definitions to a subject (eg a mayor) or an object (eg the environment), it is because some work is being done, usually work delegated to nonhumans (Latour, 1993), to stabilize the set of relations from which such definitions stem.

In terms of agency, the implications are clear: the capacity for action is the result of working with, or through, various other actants. Agency, in short, is acquired and relational, rather than inherent and individually possessed. If actants end up working together, moreover, it is not because of any inherent alignment of interests, but rather because potentially quite different interests have been translated: compromises have been made, and actants with diverse interests have been persuaded that moving toward their objectives can be best achieved by working with certain others. In terms of the priorities of a collective, then, ANT rejects the possibility of a sovereign 'actor' simply imposing his or her will from above; even nonhumans have energies that need to be recognized, massaged, and corralled, rather than simply taken. While governmentality similarly examines the 'translation' of interests, the crucial difference in ANT is the conspicuous lack of a central figure (eg a captain or a shepherd) whose interests dominate. While asymmetries in power are acknowledged (cf Law and Hetherington, 2003), the goals of an actor network are always the outcome of varying degrees of compromise among materially diverse elements. ANT's attention to the material conditions of possibility of a discourse, idea, or subject position has certain resonances with historical materialism—despite the tendency to pit ANT and Marxism as antitheses (Castree, 2002). The major departure in ANT is to consider what counts as materiality an *effect*, an outcome of ongoing socionatural relations, rather than the ground from which all else grows; thus, Latour (2007) urges us to be more materialist

<sup>(4)</sup> Empirical work using ANT often makes more specific claims about the world and proposes social and political theories, but these emerge from the details of case studies and typically cannot be generalized (cf Mitchell, 2002).

---

than the materialists, and Law (1994) describes his approach as ‘relational materialism’. Priorities and agencies emerge, in sum, as actants come together, and work together, to produce an order. Any order that is created, finally, is temporary, precarious; it requires ongoing work to keep it alive. As Law (1994, page 101) puts it: “There is no social order. Rather, there are endless attempts at *ordering*” (emphasis added).

Both governmentality and ANT, we believe, have important contributions to make to the study of LEG. Governmentality, for its part, provides a framework for examining how the local state attempts to achieve its objectives by disseminating particular forms of knowledge to produce self-governing citizens. For an environmental policy like Portland’s—which, in contrast to policies that simply ban or impose costs on particular processes or products, calls on residents to change their behaviour voluntarily—such an analysis of the ‘conduct of conduct’ is indispensable. ANT, in turn, supplies a complementary set of tools to help reveal how political priorities and the capacity to achieve them emerge *over time* from the dispersed energies of diverse actants, both human and nonhuman. Moreover, whereas studies of LEG typically take the object of government—the environment, or an element of it—for granted, ANT suggests that it too emerges contingently from materially heterogeneous relations. As we will try to show, exactly how the local environment is represented matters significantly in terms of what gets governed, and how. And, finally, whereas certain approaches to environmental governance, local and otherwise, examine the formation and circulation of discourses that seem to hegemonically orient the actions of state and other actors (cf Hajer, 1997; Mol, 2003), ANT links relevant discourses to their material conditions of possibility. Although Portland’s solution to climate change resonates with more geographically extensive forms of ecopolitical thought (eg, ecological modernization), our analysis suggests that it was also (and perhaps foremost) a response to regionally specific material conditions: the construction, and subsequent destabilization, of a regional energy system. In what follows, we bring governmentality and ANT together to analyze the work involved in developing and implementing Portland’s climate change policy.

### 3 Assembling actants for local climate change action

With a swift discussion and a unanimous vote, Portland City Council approved the proposed Carbon Dioxide Reduction Strategy in November, 1993. The first municipal climate change policy in the United States, the reduction strategy calls for a 20% reduction (relative to 1990 levels) in citywide carbon dioxide emissions by 2010.<sup>(5)</sup> The overall reduction target is spread across six broad areas: transportation, energy efficiency, renewable resources and cogeneration, recycling, tree planting, and advocacy at other levels of government. Each area has its own policy objectives, with targeted emissions reductions listed in precise megatons of carbon dioxide. Of the six areas, energy efficiency is assigned the most ambitious objectives: through increases in energy efficiency, emissions are to be cut 25% in residential uses, 20% in commercial, and 15% in industrial. Although the policy text asserts the need to “go beyond business-as-usual” (City of Portland, 1993) to address the threat of climate change, it explicitly articulates policy objectives in economic, as well as environmental, terms. In addition to addressing environmental goals, it suggests, emissions reductions promote cost-effective energy services and thereby reduce energy bills for businesses and families. To understand how Portland’s climate change policy—with its precise (to the megaton) emissions reduction targets, emphasis on energy efficiency, and broadly articulated objectives—came into being, we will examine in this section how a diverse

<sup>(5)</sup> This ambitious emissions reduction target was scaled back to 10% in a subsequent update to the strategy (City of Portland, 2001).

---

array of political interests emerged and became intertwined, beginning in the 1970s. In the process of contention, particular interests were gradually translated into broad-based support for specific kinds of local action on climate change, and a new object—local carbon dioxide emissions—was defined for the first time. Drawing on ANT, we will demonstrate how Portland’s policy work was contingently achieved through a broad assemblage of energies, not all of them human.

In Portland, claims Bob Jenks of the Citizens Utility Board (CUB), “caring about climate change is like caring about education; it isn’t a risky political issue” (personal communication, 20 April 2006). While this seemed to be correct in 2006, it certainly was not the case three decades earlier. And, yet, it was in the 1970s that new political interests related to energy policy emerged in Portland—interests that eventually came to support a specifically articulated climate change policy as well. Long endowed with an energy surplus due to massive federal investment in hydroelectric dams along the Columbia River, by the 1970s, Portland, along with the rest of Pacific Northwest, began to face an energy crunch. With a growing population and continual increases in per capita consumption, energy demand began to outstrip the capacity of the regional energy grid. Compounding the problem were major droughts in 1973 and 1976, which significantly reduced the flow of water through the dams. To quell the crunch, the utilities looked not to hydropower but to nuclear power, as few promising locations for new dams remained in the region, and the adjustable supplies of energy promised by nuclear plants were seen as the best way to address seasonal fluctuations in demand. It was a disastrous decision. Or at least it was disastrously carried out. The region’s utilities, through a consortium called the Washington Public Power Supply System (WPPSS), drew up plans to build five nuclear plants, and raised the necessary capital through municipal bonds. Due to colossal mismanagement, only one of the plants was ever built, and WPPSS eventually had to write off \$2.25 billion of its debt in what is still the largest municipal bond default in US history. When part of the so-called ‘whoops debt’ was passed on to utility customers, energy prices shot up nearly eightfold in just a few months.

The rise in energy prices, combined with other problems, inspired a broad-based and diverse movement for energy policy reforms. The largest groups were incensed simply about high prices. Household customers began to challenge the utilities, eventually organizing a ratepayers’ strike in 1982. Meanwhile, manufacturing and resources firms, many of which were energy-intensive operations lured to the region by cheap energy prices, pressed for changes through industry associations like Direct Service Industries, Incorporated. Other groups had broader concerns. Some activists sought a moratorium on the construction of nuclear power plants, which had become highly contentious in the region, years before the ‘whoops’ fiasco, when evidence surfaced that a nearby nuclear facility where weapons-grade plutonium was produced had been releasing radioactive and chemical waste into the Columbia River on a routine basis since the 1940s. Others sought to prevent the construction of new hydro dams—and, in some cases, to dismantle existing ones—as the dams’ disruption of spawning practices was thought to be the primary cause of dwindling Pacific salmon populations in the river. Although the dramatic drops of 1972 and 1974 were more likely the result of salmon forgoing spawning in those years to linger in the unusually warm waters of the Pacific (and not primarily the result of the dams), the drops nevertheless swelled the ranks of salmon activists pushing for energy reforms. As Steven Weiss of the Northwest Energy Coalition explains, with the Columbia River running directly through hydropowered Portland, city residents had a constant reminder of the connections between their lives and those of the salmon. More broadly, the increasingly conspicuous links between the city’s economy, its surrounding environment, and its energy sources “created a culture

---

of interest in energy policy that has persisted to this day” (personal communication, 16 April 2006).

Different as their goals might have been, these groups soon came to see their interests as aligned. As Latour (1987, page 108) points out, interests are not the same thing as goals; rather, “interests are what lie in between actors and their goals”. As a result, very different goals can be achieved by advancing the very same interests. Creating an alignment in interests is called ‘translation’ (cf Callon, 1986; Latour, 1987, pages 108–121). In Portland’s case, local businesses, ratepayers, and environmental groups came to recognize a shared interest in keeping investment in new energy supply to a minimum. For businesses and ratepayers, the primary concern was that new investments in energy supply would cause price increases, as nothing could beat the low-cost energy flowing from sunk costs in hydro dams. Most environmentalists, in contrast, would need more radical reforms in energy policy to achieve their goals; however, minimizing supply increases was recognized as a step in the right direction.

In response to the combined pressure of these diverse constituencies, Portland passed its first municipal energy policy in 1979. The policy aimed to rein in escalating local energy consumption through increases in energy efficiency in residential, commercial, and industrial sectors. A year later, Congress passed a similar policy, the Pacific Northwest Electric Power Planning and Conservation Act, establishing efficiency as the first priority of the energy system region-wide. Henceforth, new investments in supply could be undertaken only if no cost-effective conservation projects could be identified. While other policies might have achieved similar outcomes—and, in fact, addressed the ecological impacts of the energy system far better—energy efficiency fit exceedingly well with the particular translation of interests that had been achieved. Efficiency, in contrast to regulations or ‘green taxes’, promised to reduce energy supply pressures without costing businesses a cent. At the same time, however, it furthered the more ambitious goals of conservation-minded actants only marginally. As Ted Bottiger of the Northwest Power Planning Council explains, energy efficiency means using energy better and stalling *increases* in consumption, not reducing consumption (and its ecological impacts). “We’re not asking anyone to turn down the thermostat or wear a sweater”, he once assured the public (quoted in Gwinn, 1991). In this sense, the translation of interests, while it allows diverse goals to be furthered to some extent, always involves a kind of betrayal of enrolled actants (cf Callon, 1980; Serres, 1974).

The most immediate effect of Portland’s energy policy was to stimulate demand for new forms of information. Developing energy efficiency programs and evaluating whether objectives were being achieved required that local energy consumption be monitored, which it had not been possible to do at the time. The relevant data *existed*—they were being collected for other purposes—but they were scattered among disparate institutions and locations. Charged with the task of implementing the energy policy, the newly formed Portland Energy Office (now the Office of Sustainable Development) consolidated this scattered data in a single location, becoming, thereby, a ‘centre of calculation’ in the assembled actor network.<sup>(6)</sup> As John Law and Kevin Hetherington (2003, page 9) argue, centres of calculation “represent what had never previously been brought together

<sup>(6)</sup> Mike Armstrong, of Portland’s Office of Sustainable Development, explains how local energy use was tabulated: “All of the inputs (besides methane) were already tracked by other agencies for other reasons. It was a case of gathering existing information into one place” (personal communication, 19 October 2006). To develop a total view of local energy use, Portland’s Office of Franchise Management was solicited for data on electricity and natural gas consumption (which it was already gathering from local utilities for the purpose of assessing franchise fees), while the Oregon Department of Revenue was solicited for data on the consumption of gasoline, heating oil, diesel, propane, and kerosene (which it was already gathering from state retailers for tax collecting purposes).

---

... to generate ... what has aptly been called a 'view from nowhere.'" In this case, the Energy Office made it possible to represent and monitor the city's energy use as a whole. However, it was a representation shaped significantly by the other role the office came to serve.

In the ensuing years, the Energy Office became a centre of consultation, as well as calculation. In 1988, with the inadequacies of its existing energy policy revealed in 4% annual increases in consumption, Portland City Council moved to develop a new policy, striking a series of task forces to compile information and draft sections of the new policy. Once completed, policy drafts were circulated and rewritten in a wide-ranging process of consultation involving municipal and state agencies, the utilities, the regional energy planning council, the public transit authority, business associations, nonprofit groups, and the general public. Notably, consultations drew in several organizations that had been formed specifically to advance interests in energy policy first articulated more haphazardly a decade earlier. While businesses were already well represented by industry associations, the CUB was formed in 1984 to represent rate-payers, and the Northwest Conservation Act Coalition (now the Northwest Energy Coalition) was inaugurated in 1979 to represent salmon, antinuclear, and other environmental activists. The work of policy was shaped, as well, by the newly consolidated energy data. In the process of policy development and consultation, the data allowed groups to identify where energy was being consumed in significant amounts, and where it was being consumed inefficiently. From here, it was possible to establish reasonable sector-specific energy efficiency targets and devise acceptable tactics for achieving them. Crucially, targets and tactics were applied only to elements of energy consumption that could be influenced in an acceptable way by the municipal government. Energy used in flights to and from Portland International Airport, for instance, was excluded. Also excluded were the significant amounts of energy used in importing and exporting commodities, and the energy actually *embodied* in commodities. While these exclusions might appear reasonable, it is important to note their implications. In effect, not simply targets and tactics but also the very object to which they were applied was shaped fundamentally by the consultation process. So, when the new energy policy, approved by council in 1990, established a commitment to "increasing energy efficiency in all sectors of the City by ten percent by the year 2000" (City of Portland, 1990), it was not exactly 'all' sectors that would be targeted. It was only those sectors that could be governed. That energy use could be represented otherwise—with other implications in terms of local environmental governance—shows that 'local energy consumption' is not a self-evident object, and did not, in fact, preexist the policy that came to govern it. It came into being within the sociotechnical process of policy development. In the subsequent progress reports of the Portland Energy Office, where gains in energy efficiency were assessed, this important policy work would be forgotten.

Energy efficiency was evidently an objective with wide appeal. In the text of Portland's new energy policy, for example, efficiency appears quite explicitly as an economic interest. Inefficient energy use, it suggests, not only results in wasted money for households and businesses, but also causes nearly \$600 million to seep out of the local economy each year through energy outlays to nonlocal companies, or companies with significant nonlocal ownership. In contrast, "the business of energy efficiency" (City of Portland, 1990) *saves* money, which can then be spent more productively, and creates local business opportunities in energy services as well. What made energy efficiency appealing was that it could advance diverse (and divergent) goals in tandem. Eventually, Portland-based organizations like the CUB saw that, in addition to the energy crunch and regional environmental problems, energy efficiency could be applied to the more geographically extensive problem of climate change as well. In the late 1980s, the CUB began to push for local responses to climate change in its regular

---

mailings to ratepayers. Aware of the relative ineffectiveness of other climate change campaigns, CUB Executive Director Bob Jencks felt that mobilizing Portland residents would depend on finding a new kind of appeal for the issue. “Lots of organizations say you can’t organize around climate change”, he explains, “but you can ... It’s a question of applying the resources and finding a way to make it relevant” (personal communication, 20 April 2006). It was here that energy efficiency found a new, and vital, role. In its newsletters, the CUB worked to link efficiency and climate change, suggesting that the latter could be addressed by doing more of what the city was already doing: using energy more efficiently. Portland’s later climate change policy was shaped significantly by these efforts.

In 1991, Portland made its first explicit move toward addressing climate change by joining an informal group of twelve cities around the world intent on developing municipal-government responses to the problem. As Susan Anderson of Portland’s Office of Sustainable Development suggests, it was necessary that the city describe its efforts in terms of their economic benefits. “Back then, we didn’t talk [publicly] about global warming because people would’ve thought we were wacky”, she explains. “We talked about making changes for the cost-savings benefits” (quoted in Foyston, 2006). The economic rationale was more than just a smokescreen for an initiative intended solely to address environmental problems, however. Mike Lindberg, the city council member who stewarded its climate change efforts, reportedly perceived the issue as a formidable long-term *economic* challenge. “He understood that economies were going to change”, explains Mike Armstrong of the Office of Sustainable Development. “The choice was whether to be part of the old economy or the new one” (personal communication, 18 April 2006). Moving swiftly to reduce the emissions-intensity of the local economy, in Lindberg’s view, would not only stem climate change, but also put Portland in a better economic position when other levels of government finally moved to address the problem. Of course, no matter how broad the benefits, the beneficiaries could not be expected to support just any government action on climate change. What Portland had learned, and Lindberg knew firsthand from his long immersion in energy policy (he drafted the city’s original policy as a mayor’s aid in the late 1970s), was that diverse constituencies could be arranged behind efforts to improve energy efficiency. With energy use and climate change tightly linked, efficiency correspondingly became the lynchpin of the city’s attempt to govern carbon dioxide emissions. As with energy use, however, only certain emissions would be targeted. ‘Local carbon emissions’, as a discrete object of government, came into being in the process of policy development through the application of techniques developed earlier to represent energy consumption—and therefore involved the same questionable exclusions (as reasonable as they might appear). Hence, when Portland’s Carbon Dioxide Reduction Strategy, approved in 1993, established a commitment to cutting the city’s 10.1 million megatons of carbon dioxide emissions by 20%, it left ungoverned significant emissions that might reasonably have been considered ‘local’, but were not. In effect, the city’s climate change efforts were both enabled and constrained by its earlier attempts to govern energy consumption. The reduction strategy’s broadly articulated objectives, its focus on energy efficiency, and its representation of carbon emissions were each the product of a distinct actor network, formed in the midst of an energy crisis and stabilized through the translation of different, but compatible, interests in energy reform.

If climate change is no longer a ‘risky political issue’ in Portland, as Jencks suggests, then it is precisely because the city developed an approach to local environmental governance that harnessed diverse energies and allowed actants to make progress toward their goals in tandem. In the 1970s, energy efficiency emerged as a political objective behind which very different interests could be reconciled. Though it became

one of the means through which the local state governs, efficiency was never an expression of sovereign will. The approach emerged contingently from the conjoined energies of dispersed human actants, as well as the (hydro)power (and lack thereof) of the Columbia River, the fickle spawning practices of Pacific salmon, and the (radio) activity of nuclear waste. All these energies eventually were harnessed to a common objective, as different interests were translated into support for improvements in energy efficiency. In response to political problems, Portland drew diverse actants together and established acceptable responses. In two rounds of consultation centred on the Portland Energy Office, two objects, 'local energy consumption' and 'local carbon emissions', came into being. Whereas studies of LEG typically take the *object* of government for granted, we have tried to highlight its contingent origins and deeply political construction. The techniques involved in producing these objects were not the result of any sinister plot; however, the questionable assumptions entailed were difficult to discern once the techniques were standardized, and only inputs and outputs came to matter. Important aspects of the work of policy became hidden beneath the lid of what Latour aptly calls the 'black box' of ready-made science (cf Latour, 1999b). In sum, using ANT to study LEG forces us, first, to account for the diverse energies enrolled in programs of government, and, second, to remove the lid of black boxes to scrutinize the significant policy work taking place within. Having examined the work involved in developing Portland's climate change policy, in the next section we draw on a different approach to examine how Portland attempted to achieve its policy objectives.

#### 4 Governmentality in LEG

As the first American municipality to pass a policy on climate change, Portland was also one of the first to address directly one of the biggest hurdles that confront this type of policy. If we take a second look at Portland's ambitious emissions reduction targets in the area of energy efficiency (25% residential reductions, 20% commercial reductions, and 15% industrial reductions) something quickly becomes clear: the bulk of the city's planned reductions lies outside of areas where it has direct control. When putting this plan together, Portland was faced with the fact that the emissions produced by the municipality's own operations<sup>(7)</sup> (known as a city's corporate emissions) represented only a small fraction of the total emissions produced by the community as a whole (citizens, businesses, and industry). Many North American cities (Toronto, Chicago and Calgary, for example) avoid this issue altogether by only setting reduction targets for the city's corporate emissions.<sup>(8)</sup> To go beyond this, Portland needed to develop tactics for changing the behaviour of its constituents while still governing in a broadly democratic manner and without taking unacceptable political risks (thus, avoiding both carbon taxes and environmental totalitarianism).

Governmentality provides us with a set of concepts and questions and an interpretive context within which to understand the relationship between the state and the individuals that it governs.<sup>(9)</sup> In what follows, we will develop a Foucauldian analysis of

<sup>(7)</sup> These are generally from municipal buildings, fleet, street lighting and signalling, and methane emissions from the municipal dump and sewage processing.

<sup>(8)</sup> To put this in context, for a city like Seattle (with similar climate and population to Portland) total community emissions in 2003 were 7013 000 tons of carbon dioxide, while the city's corporate emissions were 655 000 tons, or roughly 9% of the total (City of Seattle, 2002). Portland has not published an inventory of its corporate emissions.

<sup>(9)</sup> It is important to differentiate between governmentality as a descriptive exercise and governmentality as an analytical tool. If we approach it as a descriptive exercise we will necessarily be disappointed. There is clearly much that is left out. Individuals, for example, may often come into contact with multiple competing worldviews and priorities emanating from diverse sources,

---

the links between knowledge, state power, and tactics of governing. Our earlier discussion of Foucault briefly covered the ways in which states may create and use specific forms of knowledge (eg statistics) to encourage particular forms of behaviour among their citizens. Far from a neutral medium for reporting objective truths, we argued with Foucault that statistics are value-laden and bring with them a specific worldview that prioritizes certain courses of action over others. The key move in processes of governmentalization occurs when these metrics are disseminated and accepted by the population at large, carrying their values with them, and forming a loose network of self-regulating citizens who see the world through the eyes of the state and act accordingly.

The worldview that forms the basis for Portland's response to climate change has three simple but essential components. The first is that global warming is real. The second is that it is something that can and should be addressed at the municipal level. The third is that it can be best addressed by reducing carbon dioxide through improvements in energy efficiency. To some readers, the elements of this short list may seem like common sense. It is important to note that they are not. In 2001, political controversy over the reality of anthropogenic climate change was still going strong, particularly in the United States. Even for the growing number of people concerned about climate change, it was seen as a global problem in need of global solutions of the sort put forward by the United Nations in the Kyoto protocol (see Adger et al, 2001). The opening sentences of Portland's 2001 Local Action Plan (LAP) (City of Portland, 2001, page i) make clear that the municipal government thought differently:

"It is impossible to overstate the importance of global warming. No other issue threatens our planet with such dramatic, far-reaching impacts, and, no other issue is so clearly a worldwide problem. At the same time, many of the most promising solutions to global warming are local initiatives that we can control."

The central focus of their control was household efficiency and while this drew support from the history of energy efficiency measures in Portland (seen above), it too was far from the only option in the context of climate change. By dwelling primarily on technological solutions such as proper insulation, energy-saving devices, and the promotion of high-efficiency appliances (City of Portland, 2001, page 14), city policy sidesteps questions of lifestyle change, alternative modes of habitation, or more extensive transformations of building design. Discussion of house size, communal living, or embracing a life of peaceful contemplation, for example, all lie outside of Portland's approach to household emissions reduction. This is not a criticism; the point here is to show that Portland's approach to dealing with household emissions, and climate change more generally, was anything but common sense. In fact, turning it into a truly common sense of how things should be done and engendering the type of self-regulating that this carries with it, is an underlying and essential part of Portland's attempt to reduce the city's overall community emissions.

Portland was unambiguous about both its ambitions to spread this worldview among its citizens, and the central role of specific forms of knowledge in that process. In a single sentence opening the first section of the LAP (City of Portland, 2001, page 10), the policy unintentionally provides a succinct summary of the multiscalar dissemination of power discussed by Foucault as applied to global warming:

<sup>(9)</sup> (continued)

as opposed to the unitary source outlined by Foucault. But to expect the governmentality framework to present an overarching narrative for contemporary political life is to mistake it for something that it is not. Rather, like all analytical tools, part of the work accomplished by governmentality is the simplification of the complex realities that surround us to allow us to analyze more closely specific components or key interactions.

---

“Objective: Ensure that policy decisions at all levels—government, business, and individual—seek to reduce global warming impacts.”

This depiction of the individual as a ‘level’ for policy decisions, while perhaps something of a linguistic slip emerging from the overly succinct language of policy documents, remains an almost uncanny echo of Foucault’s view of the way in which individuals, families, and groups are governed from within as they internalize the interests of the state.

Coming at the head of the section on ‘education and research’, this statement also retraces the links followed earlier between specific forms of knowledge and specific types of action. The key form of knowledge that underlies the LAP, and all of Portland’s climate change policies, is the carbon emission inventory. Begun in 1990, the inventory opened up a new area of statistics to help Portland govern carbon dioxide, providing the city with the precise figures that form the foundation of Portland’s plan and anchor its policy objectives.<sup>(10)</sup> Without them, the aimed for 10% reduction would be both meaningless and impossible to achieve. Here, as Miller and Rose (1990) summarized above, knowledge acts upon reality by pinning it down in such a way that it can be studied, counted, and—crucially—changed. We are arguing not that any use of statistics is necessarily Foucauldian, but that statistics are essential to the Foucauldian approach employed by Portland. Portland’s use of statistics allowed it to both define local environmental problems in a specific (and, as we will see, limited) way, and encourage its citizens to see and measure themselves in a way which brings them into line as self-enforcing environmental subjects.

In compiling the inventory, Portland was creating for itself an object that could be governed. Emissions that could not be governed effectively or acceptably were simply left out. Decisions about what to count as ‘local’ emissions were made on the basis of what could be influenced by the municipal government in a very particular way: through an emerging rationality stressing voluntary, market-based mechanisms. Consequently, as we touched on above, certain sources of carbon emissions that reasonably could be considered ‘local’ were excluded from the inventory; emissions, for example, stemming from air travel and from long-distance transportation of imported commodities, and the emissions generated in the production of locally consumed commodities, including energy-intensive materials like concrete. The exclusion of these major uses of energy—accounting for at least 30% of consumption related to local activities—was not the result of some vast conspiracy, but neither was it a mistake. These systematic exclusions were essential in the formation of an object, ‘local carbon emissions’, that could be governed by the city in a broadly acceptable way.

To achieve emissions reductions—not only in the city’s operations, but also in the activities of its residents—this way of seeing carbon emissions needed to inspire action throughout the community. A city report summarizes this as the challenge of creating “sustainability indicators that *encourage behaviour change* across individuals and businesses, other than simply educating” (ICSC, 2006, page 2, emphasis added). The action plan itself makes clear that it is meant to be used—not simply read. In a policy section entitled “How to use this plan”, it carries a full page calculation grid for estimating household carbon emissions (and directs the reader to similar resources on the sustainable portland website, <http://www.sustainableportland.org>). The message is clear: what the city can say about the city and surrounding county you should be able to say about yourself: “The most important partners of all are the people of Multnomah County.

<sup>(10)</sup> The LAP, for example, expresses with characteristic precision that “between 1990 and 1999, total greenhouse gas emissions in Multnomah County increased from 9.9 million to 10.6 million metric tons of carbon dioxide equivalent, a rise of just over seven percent” (City of Portland, 2001, page 4).

---

Each of us can and must make a difference. Use table 4 on the following page to estimate your household's emissions and to identify ways to reduce them" (City of Portland, 2001, page 8). Building on this, the city then developed specialized programs to facilitate the integration of different segments of the population into Portland's political rationality on climate change.

Embodying the Foucauldian model of dispersed, omnipresent, and facilitative power, the city provides a range of programs targeting more specific segments of Portland's population. For developers, designers, and builders, the city provides a clear and 'user friendly' metric for gauging and improving the emissions efficiency of their projects [Portland LEED (Leadership in Energy and Environmental Design)], as well as incentives, education, and technical assistance to help achieve reductions; for homeowners and tenants, fix-it fairs and neighbourhood energy-efficiency workshops provide the resources and materials necessary for residential efficiency retrofits; businesses receive education, assistance, incentives, and an annual award (the BEST award) to incite them to reduce their carbon emissions; and religious groups, city employees, students, community groups, and cooperatives are all targeted by specific outreach initiatives. Through this complex web of complementary programs, outlined in the LAP and elaborated on in the city's 2005 'Global Warming Progress Report' (City of Portland, 2005), the facilitative carbon-reducing power of the municipal government truly does seem to be everywhere—particularly considering that a citizen will most likely meet the initiatives not once, but at various times, in various parts of their daily life as employee, homeowner, and community member.

It may be useful to note here that, while the municipality does provide incentives in the form of green building grants, this is not simply a 'carrot and stick' approach. There are no 'sticks', no fines, taxes, or penalties for inefficiency. In fact, Portland's environmental plan was put in place at a time when these types of measures would have met with serious political opposition. Even today, when a growing number of experts believe that strictly regulating carbon emissions is essential, doing so is still seen as a risky political move. It is in this climate, where voluntary measures are insufficient but direct regulation is seen as politically unviable, that the facilitative power of governmentality finds its place.

Although much discussed in certain circles, facilitative power is itself still something of an intuitive oxymoron. It fits uneasily in the simple opposition between individual freedom and coercive state power to which we have become accustomed. A good deal of Foucault's later work aimed to show that power did not need to be coercive, or be embodied in the clenched fist of an authoritative state, to be effective. And yet Foucauldian analyses often retain a vague sense of conspiracy and intrigue. Could Portland's approach not simply be interpreted as a city's efforts to educate and empower its citizens? Yes, to a point. Our argument here is that empowerment is not a neutral, entirely liberating, or directionless process (Cruikshank, 1999); Portland empowered its citizens to do certain things and not others. No tools, for example, were provided to assist citizens in lobbying for more effective regulation of large corporations. Power in this sense is productive, rather than repressive. It produces, or attempts to produce, specific types of action, and in so doing steers us away from other courses of action.

In terms of emissions, these programs have concrete effects. Between 2001 and 2005, for example, energy conservation measures were installed in 10 000 apartment units, producing direct reductions in carbon emissions. But underlying the specific achievements of any of the above programs is the goal of creating continuity between the objectives of the local state and the priorities of its citizens. The cumulative and implicit effects of the intersection of these multiple technologies of government

(eg metrics, reports, programs) at the level of the individual citizen are to encourage the internalization of the city's vision of climate change and produce the type of self-regulating subjects that is essential to governmentalization. The purpose of these programs, then, is not only the reduction of carbon dioxide emissions, but also the creation of the individual subject as an active agent of government.

At the core of the "environmental subjectivity" (Agrawal, 2005) fostered by Portland's policies is the creation of a responsible, carbon-calculating individual. Assumed and encouraged by the initiatives listed above is the vision of a self-reflexive individual taking responsibility for knowing and reducing his or her emissions. Through the metrics and mechanisms of measurement provided by the city, Portland residents are able to see themselves in pounds of carbon per year—each pound a measure of the individual's (ir)responsibility, each pound calling out to be reduced. Implicit in the act of measurement here is the goal of reduction, and achieving it is made easier by the training and technologies made available by the city.

Through these efforts we have seen how Portland aimed to put in place a new discourse of energy efficiency to help it accomplish its objectives of reducing both corporate and community carbon emissions. The underlying work of this policy was to bridge the gap that usually separates the regulation of city operations and the individual behaviour of its citizens. It is exactly those goals that have pushed us to find a different approach to analyzing environmental policy, one that can theorize the shaping of individual behaviours. The analytical structure provided by Foucault opens up the steps through which this work was attempted, by isolating key elements that allowed the municipal government to facilitate the creation of a particular kind of environmental subjectivity and the translation of the priorities of the state into the goals and ambitions of individuals and groups. Governmentality has helped us to understand how the policy 'worked', how it achieved the objectives set out in it—no straightforward matter, when we are talking not about banning a polluting chemical, but about stimulating changes in the way people live. Understanding this translation is key to understanding the way in which Portland managed to overcome the disconnect that usually separates corporate and community environmental initiatives.

## 5 Conclusion

Initiatives like Portland's climate change policy present new challenges to the study of LEG. Whereas existing research has described several of the obstacles facing LEG programs, it is also important to understand how political priorities emerge, how a specific object of government is constituted, and how the local state tries to achieve its adopted policy objectives. In this paper, we demonstrated how governmentality and ANT can be brought together to examine the various kinds of work involved in policy development and implementation. Drawing on ANT, we showed how energy efficiency emerged as an approach to political problems through the translation of different interests in energy reform, and how, through calculations and consultations centred on the Portland Energy Office, 'local carbon emissions' came into being as an object that could be governed. These are issues typically ignored, not only by studies of LEG but also in studies of governmentality. As Dean and Henman (2004, page 491) point out, in the tight focus of the governmentality framework, "the 'ship of state' appears to be a lonely vessel on the open seas for Foucault. In reality, it meets and passes or engages in commercial, diplomatic, and military relationships with other such ships." Given that Foucault refers to the state as a "mythicized" "composite reality" (1991), it is ironic that his analytical framework portrays it as such a unitary, isolated actor. In pulling apart the different layers that make up this composite, and showing how each, as they were intermeshed with the 'ship of state', helped to determine its character and

---

its course, ANT can make useful contributions to the analysis of political programs, environmental or otherwise. More than anything, ANT highlights how the subjects and objects of politics come together in processes of consultation and contestation. This work of policy is a crucial part of Portland's achievements.

But ANT alone cannot provide a complete analysis of initiatives like the one in Portland. Although it highlights that interests are translated in the enrolment of different actants, ANT does not provide an adequate understanding of precisely *how* actants like the state attempt to shape the subjectivities and behaviours of other actants. Drawing on governmentality, we demonstrated how, through particular technologies of government, links were forged between the worldview of the state and the self-governing capacities of its residents. Here, again, we suggest that governmentality and ANT might be brought productively together in many types of analysis, not just those of LEG. We are not proposing that governmentality should always fill the role we accorded it here. We have, for one, already signalled that the economic roots and assumptions that underlie governmentality may make it inappropriate for analyzing certain political programs. However, in specific constellations of power in which state objectives require behaviour change and where the use of force (legislative or physical) is deemed politically or ethically untenable, governmentality may prove to be a productive approach to analyzing state actions.

The approach developed in this paper not only provides an understanding of policy work, but also allows a critique of it. First, it shows how the specific actor-network assembled in Portland not only enabled but also constrained local action on climate change. Energy efficiency, as a solution to both the energy crisis and climate change, allowed different actants to move toward their goals in tandem, and, hence, provided a way for the city to address these problems in a broadly acceptable way. However, as we suggested above, improving energy efficiency is not the same as actually reducing energy consumption. As a result, Portland's climate change efforts missed important opportunities to reduce emissions by doing nothing to prevent continually larger (yet energy efficient) homes from being built in the area, and providing little support for renewable energies. Commenting on the effects of the city's adopted response to climate change, local activist Mark Cherniak lamented: "Energy efficiency is a double-edged sword: it's the reason for our progress, but it's also holding us back. Fundamentally, we're bleeding" (personal communication, 15 May 2006). Second, our approach highlights the questionable work involved in constituting 'local carbon emissions' as an object of government. As we mentioned above, many emission-producing activities were excluded from Portland's carbon inventory. Had these activities been included, it might have stimulated support for programs seeking to reduce air travel, 'localize' economic activity, question consumer culture, or reduce the energy intensity of consumed goods—including building materials like concrete, and imported food. One way to achieve further progress on carbon emissions, therefore, would be to invite open public debate on how to represent the 'local environment'. Does it involve simply elements that the local state can influence? Elements that can be governed without negatively affecting the potential for capital accumulation? Does it include the ecological impacts of local residents, even as they fly in and out of the city? Or does it mean all of the activities, all around the world, that contribute to the social and economic well-being of city residents? These questions matter in terms of what gets counted, and what gets governed.

Finally, while our aim was only to analyze how the local state attempted to achieve its adopted objectives (and not to measure its reception or success), the reduction in per capita emissions that Portland has achieved indicates that the use of governmentalizing power has been relatively successful in shaping the behaviour of area residents.

Given the city's desire to reduce emissions beyond its own operations without force and without taking undue political risks, it is not surprising that governmentalizing tactics were chosen. But this certainly was not the most democratic or productive way to address climate change. With so little being accomplished (anywhere) to address such an enormous problem, it is tempting to applaud any initiative that manages to cut greenhouse gas emissions. It is important to remember, however, that Foucault wanted to critique, rather than endorse, the veiled exercise of power achieved by the modern state over the lives of its citizens. Likewise, there is a growing body of research that indicates the necessity of more directly and deeply engaging community members in the process of creating and implementing environmental plans. Such research suggests that truly participatory planning (as opposed to more shallow consultative approach practiced by Portland and many other cities<sup>(11)</sup>) both addresses the specific environmental issues at stake, while also increasing local capacity for management and decision making, enhancing public support and compliance, and extending the boundaries of what is politically acceptable (see Fung and Wright, 2001; Heller et al, 2007; Holmes and Scoones, 2000). It is interesting to note that Portland has recently begun to move in this direction with its visionPDX planning initiative, begun in the winter of 2006, to steer the next stage of its sustainability policies (City of Portland, 2006). Clearly, a governmentalizing process is not the only (or best) way to address situations in which municipal governments want to push the boundaries of local sustainability initiatives.

To avert global climate change, mimicking Portland's efforts in other cities (or nation-states) will not be enough. Dislodging, or radically reshaping, the 'common sense' that steers current political and personal actions is a challenging and necessary project. One strategy might be to consciously enrol and create new actants in a more radical assemblage. This, of course, is what activists have always tried to do. And, yet, a better understanding of the *sociotechnical* processes through which assemblages come together could inspire new movement-building strategies, and take political contention onto new terrain. While the prospects of change (always) appear dim, our approach suggests, we hope, the work that is involved in maintaining the status quo – work that might always be undone, or done differently. Highlighting and critiquing how worlds are made in the often mundane work of public policy is, in our view, where the study of LEG stands to make its foremost contribution. Clearly, there is work still to be done.

## References

- Adger W N, Benjaminsen T A, Brown K, Svarstad H, 2001, "Advancing a political ecology of global environmental discourse" *Development and Change* **32** 681–715
- Adger W, Arnell N, Tompkins E, 2005, "Successful adaptation to climate change across scales" *Global Environmental Change* **15**(2) 77–86
- Agrawal A, 2005 *Environmentality: Technologies of Government and the Making of Subjects* (Duke University Press, Durham, NC)
- Barnes T, 2005, "Culture: economy", in *Spaces of Geographical Thought* Eds P Cloke, R Johnston (Sage, London) pp 61–80
- Betsill M, 2001, "Mitigating climate change in US cities: opportunities and obstacles" *Local Environment* **6** 393–406
- Braun B, 2002 *The Intemperate Rainforest: Nature, Culture, and Power on Canada's West Coast* (University of Minnesota Press, Minneapolis, MN)

<sup>(11)</sup> Although Portland employed what it describes as a collaborative public process to vet the draft of the LAP, actual numbers are extremely low: only thirty parties (spread across individuals, business owners, nonprofit organizations, and local, state and federal agencies) submitted comments on the draft (City of Portland, 2001). By comparison, the City of Calgary, in a very different approach to municipal environmental planning, involved over 17 000 citizens in the creation of its Long Range Urban Sustainability Plan (City of Calgary, 2006).

- Callon M, 1980, "Struggles and negotiations to define what is problematic and what is not: the sociology of translation", in *The Social Process of Scientific Investigation: Sociology of the Sciences Yearbook* Eds K D Knorr, R Krohn, R D Whitley (Reidel, Boston, MA) pp 197–219
- Callon M, 1986, "Some elements of a sociology of translation: domestication of the scallops and the fishermen of Briuc Bay", in *Power, Action, and Belief* Ed. J Law (Routledge, New York) pp 196–233
- Callon M, Latour B, 1995, "Agency and the hybrid collectif" *South Atlantic Quarterly* **94** 481–507
- Castree, N, 2002, "False antitheses: Marxism, nature, and actor-networks" *Antipode* **32** 111–146
- City of Calgary, 2006, "Long range urban sustainability plan for Calgary", [http://www.calgary.ca/docgallery/bu/planning/pdf/long\\_range\\_urban\\_sus\\_plan.pdf](http://www.calgary.ca/docgallery/bu/planning/pdf/long_range_urban_sus_plan.pdf)
- City of Portland, 1990, "ENN-6.01 energy policy", <http://www.portlandonline.com/auditor/index.cfm?a=dgcodh&c=dbcca>
- City of Portland, 1993, "Carbon Dioxide Reduction Strategy", <http://www.portlandonline.com/shared/cfm/image.cfm?id=112110>
- City of Portland, 2001, "Local Action Plan on Global Warming", <http://www.portlandonline.com/osd/index.cfm?c=41917&a=112115>
- City of Portland, 2005, "Global Warming Progress Report", <http://www.portlandonline.com/osd/index.cfm?c=41917&a=112118>
- City of Portland, 2006, "Portland 2030 ... it's up to you", <http://www.visionpdx.com/downloads/booklet%20single%20pages%20web.pdf>
- City of Seattle, 2002, "Inventory and report: Seattle's greenhouse gas emissions", Office of Sustainability and Environment, <http://www.seattle.gov/environment/documents/inventory%20final%204-11-02.doc>
- Cruikshank B, 1999 *The Will to Empower: Democratic Citizens and Other Subjects* (Cornell University Press, New York)
- Dean M, 1999 *Governmentality: Power and Rule in Modern Society* (Sage, Thousand Oaks, CA)
- Dean M, Henman P, 2004, "Governing society today: editors' introduction" *Alternatives* **29** 483–494
- Flynn B, 2000, "Is local truly better? Some reflections on sharing environmental policy between local governments and the EU" *European Environment* **10** 75–84
- Foucault M, 1981a, "Omnes et singulatim: towards a criticism of 'political reason'", in *The Tanner Lectures on Human Values* volume 2, Ed. S McMurrin (University of Utah Press, Salt Lake City, UT) pp 223–254
- Foucault M, 1981b, *The History of Sexuality: An Introduction* (Penguin Books, Harmondsworth, Middx)
- Foucault M, 1991, "Governmentality", in *The Foucault Effect: Studies in Governmentality* Eds G Burchell, C Gordon, P Miller (Harvester Wheatsheaf, Hemel Hempstead, Herts) pp 87–104
- Foucault M, 2007 *Security, Territory, Population: Lectures at the Collège de France* Ed. M Sennellart (Palgrave Macmillan, New York)
- Foyston J, 2006, "Warming world, cool city" *The Oregonian* 21 April, page E1
- Franklin A, 2006, "Burning cities: a posthumanist account of Australians and eucalypts" *Environment and Planning D: Society and Space* **24** 555–576
- Fung A, Wright E, 2001, "Deepening democracy: innovations in empowered participatory governance" *Politics and Society* **29**(1) 5–41
- Gwinn M, 1991, "Power Council OKs 10-year conservation plan" *Seattle Times* 24 April, page B3
- Hajer M, 1997 *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process* (Oxford University Press, New York)
- Haraway D, 1991 *Simians, Cyborgs, and Women: The Reinvention of Nature* (Routledge, New York)
- Heller P, Harilal K N, Chaudhuri S, 2007, "Building local democracy: evaluating the impact of decentralization in Kerala, India" *World Development* **35** 626–648
- Holmes T, Scoones I, 2000, "Participatory environmental policy processes: experiences from North and South", WP 113, Institute of Development Studies, University of Sussex, Brighton
- ICSC, 2006, "Portland profile", International Centre for Sustainable Cities, Vancouver
- Jörby S, 2000, "Local Agenda 21 in practice: a Swedish example" *Sustainable Development* **8** 201–214
- Kiriakou N, 2005, "Blue skies, green cities", Inter Press Service, 20 July
- Lake R, 2000, "Contradictions at the local scale: local implementation of Agenda 21 in the United States", in *Consuming Cities* Eds N Low, B Gleeson (Routledge, New York) pp 71–91

- Latour B, 1987 *Science in Action: How to Follow Scientists and Engineers Through Society* (Harvard University Press, Cambridge, MA)
- Latour B, 1993 *We Have Never Been Modern* (Harvard University Press, Cambridge, MA)
- Latour B, 1999a, "On recalling ANT", in *Actor-network Theory and After* Eds J Law, J Hassard (Blackwell, Oxford) pp 15–25
- Latour B, 1999b *Pandora's Hope: Essays on the Reality of Science Studies* (Harvard University Press, Cambridge, MA)
- Latour B, 2007, "Can we have our materialism back, please?" *Isis* **98** 138–142
- Law J, 1992, "Notes on the theory of the actor-network: ordering, strategy, and heterogeneity" *Systems Practice* **5** 379–393
- Law J, 1994 *Organizing Modernity: Social Action and Social Theory* (Blackwell, Malden, MA)
- Law J, 1999, "After ANT: topology, naming and complexity", in *Actor-network Theory and After* Eds J Law, J Hassard (Blackwell, Oxford) pp 1–14
- Law J, Hetherington K, 2003, "Materialities, spatialities, globalities", Centre for Science Studies, Lancaster University, <http://www.lancs.ac.uk/fss/sociology/papers/law-hetherington-materialities-spatialities-globalities.pdf>
- Lindseth G, 2004, "The Cities for Climate Protection Campaign and the framing of local climate policy" *Local Environment* **9** 325–336
- Meadowcroft J, 1999, "The politics of sustainable development: emergent arenas and challenges for political science" *International Political Science Review* **20** 219–237
- Mercer D, Jotkowitz B, 2000, "Local Agenda 21 and barriers to sustainability at the local government level in Victoria, Australia" *Australian Geographer* **31** 163–181
- Miller P, Rose N, 1990, "Governing economic life" *Economy and Society* **19** 1–31
- Mitchell T, 2002 *Rule of Experts: Egypt, Techno-politics, Modernity* (University of California Press, Berkeley, CA)
- Mol A, 2003 *Globalization and Environmental Reform: The Ecological Modernization of the Global Economy* (MIT Press, Cambridge, MA)
- Murdoch J, 1997, "Towards a geography of heterogeneous associations" *Progress in Human Geography* **21** 321–337
- Pacific Northwest Electric Power Planning and Conservation Act, Act of Dec. 5 1980, 94 Stat. 2697, Public Law No. 96-501, S.885
- Parto S, 2004, "Sustainability and the local scale: squaring the peg?", Maastricht Economic Research Institute on Innovation and Technology, Maastricht
- Rose N, 1999 *Powers of Freedom: Reframing Political Thought* (Cambridge University Press, Cambridge)
- Selman P, 2000, "A sideways look at Local Agenda 21" *Journal of Environmental Policy and Planning* **2** 39–53
- Serres M, 1974 *La Traduction, Hermes III* (Edition de Minuit, Paris)
- Slocum R, 2004a, "Polar bears and energy-efficient light bulbs: strategies to bring climate change home" *Environment and Planning D: Society and Space* **22** 413–438
- Slocum R, 2004b, "Consumer citizens and the Cities for Climate Protection Campaign" *Environment and Planning A* **36** 763–782
- Whatmore S, 1999, "Hybrid geographies: rethinking the 'human' in human geography", in *Human Geography Today* Eds D Massey, J Allen, P Sarre (Polity Press, Cambridge) pp 22–39
- Wolfe C, 2003 *Animal Rites: American Culture, the Discourse of Species, and Posthumanist Theory* (University of Chicago Press, Chicago, IL)
- Worthington I, Patton D, Lindley I, 2003, "Local authorities, business and LA21: a study of East Midlands sustainable development partnerships" *Local Government Studies* **29**(1) 91–110

**Conditions of use.** This article may be downloaded from the E&P website for personal research by members of subscribing organisations. This PDF may not be placed on any website (or other online distribution system) without permission of the publisher.