Is the UK preparing for "war"? Military metaphors, personal carbon allowances, and consumption rationing in historical perspective

Maurie J. Cohen

Abstract Metaphors are essential devices for fostering collective understanding and forging political commitment across diverse constituencies. Due to the ineffectualness of prevailing linguistic representations of climate change, discursive entrepreneurs have begun to invoke over the last few years new imagery that frames the challenge as tantamount to a protracted state of armed hostility. This process of rhetorical militarization has been most prominent in the UK and it is subsequently creating opportunities for policy makers to propose greenhouse gas-reduction strategies that are reminiscent of wartime austerity programs. A particular approach that has attracted considerable interest is consumer regulation involving the imposition of annual quotas on personal carbon emissions. This idea is best understood as a variant of the comprehensive civilian rationing programs that were deployed during and after World War II. Because any eventual scheme to reduce greenhouse gas production at the individual level will require consummate public legitimacy, this historical experience can serve as a useful reference point for the design of contemporary interventions. To this end, the discussion highlights the methods that the British government used to sustain compliance with the war and postwar consumption control regimes. Of special interest is the role that black market trading and other illicit forms of commerce played during these periods. The conclusion reflects on the status of consumerism in contemporary lifestyles, considers the risks of political interference with consumer prerogatives, and draws some insights from this earlier experience with rationing.

M. J. Cohen (✉)
Graduate Program in Environmental Policy Studies, New Jersey Institute of Technology,
University Heights, Newark, NJ 07102, USA
e-mail: mcohen@adm.njit.edu

People that have been in Downing Street over the years have faced issues to
do with the Cold War, the Depression and the rise of fascism. Climate change
is a bit of a different type of challenge but a challenge I believe is the biggest
long-term threat facing our world.

—Former Prime Minister Tony Blair (2007)[1]

1 Introduction

Metaphors play an indispensible role in developing collective understanding and the
use of bellicose imagery often provides an especially expedient way to distill complex
political challenges into more readily graspable concepts (Lakoff and Johnson 2003;
Meierhenrich 2006). At different times and places, policy makers have launched
symbolic wars against a broad range of targets including alcoholism, smoking,
homelessness, illicit drug use, and, more recently, both "terror" and corruption
(Skirrow 1986; Greenberg 1995; Breakley 1997; Blendon and Young 1998; Sarbin
2003; Heineman and Heimann 2006). In what is perhaps the most famous deployment
of this strategy, President Lyndon Johnson sought during the 1960s to generate
momentum for his plan to uplift poor Americans out of indigence by characterizing
his administration's multipronged strategy as a "war on poverty" (Duggan 2003).
Experience suggests that the use of militaristic representations can be an effective
device with which to convey seriousness of purpose, to marshal financial resources, to
disable opponents, and to mobilize diverse constituencies behind a common banner.
Martial language can also communicate a political message that success may take
time and that public sacrifice may be required as part of the struggle.

Politics is not the only arena for engaging in metaphoric warfare. Over the years,
scientists have led their own symbolic battles with the medical specialties evincing the
greatest inclination to deploy such strategies (Hodgkin 1985; Arrigo 1999). The war
against cancer has, of course, been a prominent, exhausting and, at times, contentious
campaign (Penson et al. 2004; Reisfield and Wilson 2004; Faguet 2005). Its slow
pace, though, has not discouraged researchers from opening new fronts against other
conditions such as acquired immune deficiency syndrome (AIDS), severe acute
respiratory syndrome (SARS), and obesity (Rovner 1997; Friedman 2003; Chiang
and Duann 2007). Even the infirmities of old age have inspired some proponents of
life-extension to call for their own military mobilization (Vincent 2007). In a related
vein, veterinarian science has instigated wars against forbidding contagions like foot-
and-mouth disease and avian flu (Nerlich 2006; Nerlich and Halliday 2007).

Although they have not enjoyed the same public visibility as the figurative
warriors fighting on the battlefields of social policy and human and animal medicine,
environmental scientists also have a long tradition of relying on bellicose imagery
to give tangible form to abstract phenomena in nature (Worster 1992; Golley 1993;
Bocking 1997; Carolan 2006). Darwinian conceptions of competitive selection have
been at the heart of the most prevalent mental models for more than a century
and continue to have pervasive influence on public discourse (Al-Zahrani 2008).

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[1]Quoted in Churcher (2007).

Current debates surrounding biodiversity, in particular the threat of invasive species to indigenous flora and fauna, are regularly constructed around notions of war (Larson 2005; Larson et al. 2005).

   This article commences with a discussion of "discursive entrepreneurship" and the increasing use of militaristic representations to characterize the challenges of reducing greenhouse gas emissions. This trend is most readily apparent in the UK where a recognizable group of public figures has begun in recent years to call for a "war against climate change" and to employ terminology that evokes the country's steadfastness during World War II. While some observers may be inclined to dismiss this language as insipid political rhetoric, such a critique fails to recognize the profound implications that conceptual reinterpretation of environmental uncertainty can precipitate over the longer term (Aaltola 1999; Lindenbaum 2001). It is accordingly useful to keep in mind that ambitious geoengineering strategies like carbon capture and storage were dismissed a decade ago as unrealistic interventions, but are today regarded as a pragmatic part of virtually any climate mitigation policy program (Schrag 2007). It is moreover conceivable that these efforts to reframe climate change as tantamount to war will gain greater political salience as unambiguous evidence of climatic warming becomes more readily apparent in coming years.

   The following section first describes how "discursive entrepreneurs" in the Anglophone countries have been invoking martial metaphors to reframe the public discussion on climate change and then highlights the unique prominence of this terminological shift in the UK. The third section discusses how this conceptual connection between anthropogenic greenhouse gases and armed conflict is contributing to the creation of a political context that facilitates consideration of quintessentially wartime-like policy proposals. The incipient debate has to date centered most notably on consumer regulation in the form of personal carbon rationing. To demonstrate the historical relevance of this development, the fourth section provides a précis on consumer regulation in Britain during and after World War II. The fifth section describes some of the perverse effects of this consumption control regime and outlines specifically the role of black market trading. The conclusion reviews the lessons that this experience holds for the formulation of contemporary initiatives to devise consumer regulations to mitigate climate change.

2 Climate change as tantamount to war

Popular understanding of the complex science surrounding climate change has been extensively shaped over the past two decades by a variety of metaphors including hothouses, boiled frogs, coalmine canaries, heat-trapping blankets, sinks, sponges, and conveyor belts (Schneider 1989, 2010; Wiman 1995; Gelbspan 1998; Brüning and Lohmann 1999; Leggett 2001; Dessler and Parson 2006; Somerville 2006; Penning-Rowsell et al. 2006; Judge 2007; Bostrom 2008; Egger 2008; Cojanu 2008; Hamblyn 2009). One influential line of critique focuses on the generally low salience of these symbolic images—especially in contrast to the illustrative power of an "ozone hole"—and holds that slow progress on a substantive international agreement is at least partly due to this weakness (Ungar 2000, 2003). As the scientific case for severe climate change-induced impacts has strengthened in recent years (IPCC 2007; Stern 2007), "discursive entrepreneurs" have intensified their efforts to introduce

new linguistic models to reconceptualize the urgency of the problem. The notion of discursive entrepreneurship refers to the capacity of publicly influential individuals to use rhetorical means to legitimatize certain normative claims and to connect these commitments to the larger political order (Holzscheiter 2004; Langenohl 2008; see also Litfin 1994; Hajer 1995; Lindseth 2005). In its extreme form, competing groups engage in adversarial politics with the singular aim of advancing their own interests (or at least protecting previous gains). "Evidence" under such circumstances is heavily contested and veracity is determined through the mobilization of political resources. The deployment of metaphors with high public resonance can be a useful way to engage in this type of claims-making (Dryzek 2005).

The news media is one channel that discursive entrepreneurs rely upon to re-configure policy discussions, though experience demonstrates that this process can be unpredictable at times. While there has been important improvement in recent years at elite publications, most journalists have a hard time digesting nuanced scientific subjects and rendering them into readily readable content. A further problem, as has been frequently noted by scholars working in the field, stems from the fact that scientific developments do not typically progress in accordance with daily news cycles and only rarely provide "hooks" on which reporters can easily hang a story. It is also certainly the case that the growth of cable and satellite news organizations, and the concomitant demise of newspaper readership, has fundamentally altered the journalistic landscape.

Despite these caveats, the notion of "war" is consistent with the Manichean dramas that feature so centrally in contemporary newsmaking and this is the impulse prompting certain discursive entrepreneurs to frame climate change in militaristic terms. Facilitating the effective deployment of martial metaphors is the fact that the current era is characterized by polarized politics, uncivil public debate, and multiple preexisting armed conflicts and both news producers and consumers are primed to think of public policy as a combative activity.
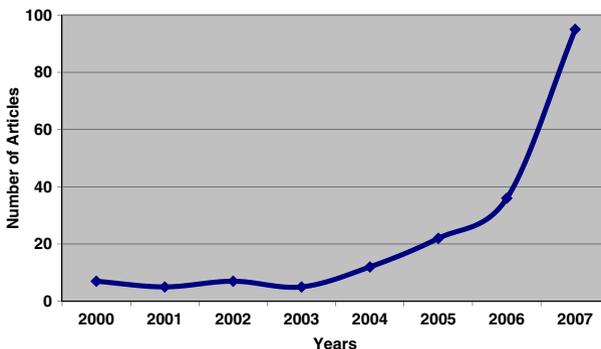
Fig. 1 International news coverage of "the war on climate change," 2000–2007. Includes all unique entries for each year using search strings comprising the phrasing "war on" and "war against" in combination with "climate change" (and its various near synonyms like "global warming," "greenhouse effect," and so forth). The analysis encompasses "newspapers of record" in the five major Anglophone countries—Australia, Canada, New Zealand, the United Kingdom, and the United States. Source: Data assembled from Lexis–Nexis database
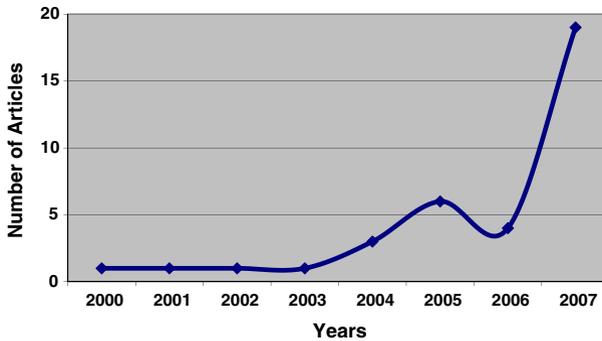
Fig. 2 UK news coverage of "the war on climate change," 2000–2007*. *Includes all unique entries for each year using search strings comprising the phrasing "war on" and "war against" in combination with "climate change" (and its various near synonyms like "global warming," "greenhouse effect," and so forth). The following newspapers are included in the analysis: *The Guardian/Observer*, *The Times/Sunday Times*, *The Independent/Independent on Sunday*, *The Daily/Sunday Telegraph*, and *The Financial Times*. Source: Data assembled from Lexis–Nexis database

Archival databases are a useful tool for making preliminary assessments of the emergence and diffusion of new media frames. One database that has gained particularly widespread uptake for such research purposes is Lexis–Nexis because it offers an electronic desktop platform to review the content of numerous English-language newspapers from around the world. A comprehensive investigation of this resource reveals that militaristic representations—principally through the phrase "war on (or against) climate change"—began to noticeably infiltrate news coverage in 2005 and this trend has become more prominent over the last few years (Fig. 1). While the magnitude of this phenomenon is partly attributable to an upwelling of journalistic coverage of climate change during the relevant timeframe (Carvalho and Burgess 2005; Boykoff 2008a, b), the use of this specific terminology marks a substantive change in communication. It is too soon to know whether this new bellicose imagery is actually supplanting prior metaphors, but it is evident that a tacit process is currently underway to recast popular understandings of the magnitude of the challenge.

While this putative process of reframing is underway to varying degrees in all Anglophone nations, further investigation using the Lexis–Nexis database reveals that the trend is most visibly apparent in the UK (Fig. 2).[2] This leading position can be attributed to relatively greater public attentiveness about climate change among the British public (and the corresponding level of media coverage engendered by this level of awareness) than has hitherto been the case in Australia, Canada, New Zealand, the United States, and other English-speaking countries (Grubb 2002; Lorenzoni and Pidgeon 2006; see also Sandvik 2008). It is also important not to

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[2]The daily readership of "tabloid" newspapers in the UK is far more extensive than the arguably more authoritative "broadsheets." However, content from the tabloids is not comprehensively archived in the Lexis–Nexus database so these publications are not included in the current analysis. This is an unfortunate deficiency as the tabloids are more likely to employ graphic language with populist appeal. Refer to Boykoff and Mansfield (2008) for a notable study of coverage of climate change in the British tabloid press.

disregard the role that different national journalistic traditions play in shaping language usage and the extent to which discursive entrepreneurship is enabled by such circumstances (Taylor and Nathan 2002; Antilla 2005; Smith 2005; Carvalho 2007; Boykoff 2007a, b; Boykoff 2008a, b; Boykoff and Mansfield 2008; Kenix 2008; Doulton and Brown 2009; Mazur 2009). For instance, authoritative news organizations in the United States (e.g., *The New York Times*, *The Washington Post*, *The Wall Street Journal*) tend to eschew the kinds of figurative embellishments that are regarded as distinctive attributes of their British counterparts.

If we lengthen the timeframe and take a slightly longer historical perspective, it becomes apparent that the popularization of this particular metaphoric frame for climate change in the UK is not an entirely novel development. For more than two decades, a growing number of discursive entrepreneurs in the country have been invoking bellicose imagery to induce a sense of urgency about the need to reduce greenhouse gas emissions. The following account presents a stylized review of this deployment of militaristic representations to incrementally condition the public for the eventual implementation of stringent policy measures.

Already in the late 1980s, a small handful of political figures began to employ images of protracted armed conflict to stimulate popular interest in climate change. In the years prior to the Rio Earth Summit, the British government couched its early attempts to jumpstart negotiations on an international framework convention as the first phase of a prolonged process of military engagement. Both Sir Crispin Tickell, the country's ambassador to the United Nations at the time, and former Prime Minister Margaret Thatcher warned that efforts to get a grip on the problem would inevitably entail a long and arduous campaign (see Bone 1989). Some members of the British media were similarly prone to "declare war on the greenhouse effect" and one widely distributed tabloid seized the initiative to distribute free tree seeds to its readers (Sunday Mail 1989).[3]

This early burst of war-talk about mobilizing militarily against climate change temporarily receded during the course of the 1990s. A handful of journalists and other commentators continued to employ military terminology with some regularity, but they tended to use such language as shorthand for the scientific controversies surrounding the issue rather than to motivate a political program for achieving a specific objective. It was not until after the September 11 terrorist incidents of 2001, the invasion of Iraq of 2003, and the launch of a subsequent "war on terror" that a more diffuse group of discursive entrepreneurs began to propound that climate change was a combative enemy that needed to be subdued. The American climate scientist Michael Oppenheimer (2003) suggested that the United States should "declare war on global warming" after the situation in the Middle East had stabilized. This recommendation sought to amplify a controversial statement by United Nations arms inspector Hans Blix who had said a few weeks earlier, "I am more worried about global warming than I am about any major military conflict" (quoted in Oppenheimer 2003). Sir David King (the British government's chief scientific advisor

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[3]Former American president George H. W. Bush, as part of an effort to burnish his claim to be "the environmental president," used similarly combative exhortations in September 1988 in announcing that he would lead the "war against global warming" (The Boston Globe 1989). His successor, Bill Clinton, echoed these sentiments several years later when he sought to enlist volunteers in an "international war on the greenhouse effect" (Kennedy 1996).

at the time) further amplified this connection between the threats of terrorism and greenhouse gases when he wrote in *Science* that "climate change is the most severe problem we are facing today, more serious even than the threat of terrorism" (King 2004). Later the same year, in an unprecedented statement delivered at a conference in Berlin, Queen Elizabeth urged the United States to join the "war against global warming" (Nixson 2004). Such sentiments were echoed a few months later by the former Conservative Party leader, Michael Howard (2005), who also invoked the need to enjoin the Americans in much the same way that Churchill had sought to enlist Roosevelt during the early part of World War II.

Discursive entrepreneurship to link climate change with war expanded in 2006 with releases of both the film *An Inconvenient Truth* and the Stern Report on the Economics of Climate Change (published as Stern 2007; see also McLean 2008).[4] These efforts received further inducement during the following year as the UK government took up a debate on sweeping and ambitious new climate change legislation. New conscripts from both the worlds of politics and science clambered onto the battlements. In a speech accepting the Global Environmental Citizen Award, Prince Charles sought to persuade the world to assume a combative footing and declared, "We should see this as a war we simply have to win" (Clark 2007).[5] Even the normally sober-minded physicist Stephen Hawking, while participating in a ceremony to move forward the Doomsday Clock, remarked, "Terror only kills hundreds or thousands of people. Global warming could kill millions. We should have a war on global warming rather than a war on terror" (Associated Press 2007).[6] Speaking at the same event, Martin Rees, president of the Royal Society and the Astronomer Royal, observed, "We are transforming, even ravaging the entire biosphere. These environmentally driven threats—threats without enemies—should loom as large as did the East–West divide during the Cold War era" (Associated Press 2007). The editor of *Newsweek* magazine captured the zeitgeist in the following terms: "A war on greenhouse gasses does not stir the soul in quite the ways the soul is accustomed to being stirred, but it is the challenge of our time, and we will be judged by how well, or how poorly, we meet it" (Meacham 2007).

It is not just discursive entrepreneurs on the periphery of policy making that have embraced a war motif when discussing climate change. Baroness Barbara Young, the former chief executive of the UK Environment Agency, publicly proclaimed

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[4]A separate front in the putative "war" on climate change opened up in the United States during 2005 when California governor Arnold Schwarzenegger proposed a series of ambitious initiatives as part of his climate strategy for the state. Commentators seized upon the actor-cum-politician's screen persona in the film *The Terminator* and portrayed his policy proposals in characteristically pugnacious terms (see, e.g., Jackson 2007). Later in the same year, the devastation caused by Hurricane Katrina gave added impetus to this martial depiction of what the future might hold for other vulnerable communities in the United States and elsewhere (Doward et al. 2007; see also Törnqvist 2007).

[5]The Center for Health and the Global Environment (part of Harvard University's Medical School) annually bestows the Global Environmental Citizenship Award. See http://chge.med. harvard.edu/events/gec10.html.

[6]The Doomsday Clock is a symbolic timepiece maintained by the Bulletin of the Atomic Scientists as a way of depicting the risk of catastrophic destruction due to nuclear technologies, climate change, and biosecurity failures. A panel of experts regularly adjusts the "clock" in light of political and scientific developments in these areas. See http://www.thebulletin.org/content/doomsday-clock/overview.

that climate change needs to be fought like "World War Three" (Clover 2007). In addition, David Cameron, the current Conservative Party leader, advocated in favor of a proposal to limit annual air travel to 2000 miles per person (Wintour 2007) while separately asserting that the "war against climate change must not penalise ordinary people" (Pascoe-Watson 2007). The most outspoken British political figure to envisage the challenge of climate change as war has though without question been Michael Meacher, a former Environment Secretary and current Labour Party member of Parliament.[7] In one of his more explicit statements on the subject, he wrote

> What we, and the government, need to get our minds round is that we are at war: at war against climate catastrophe, presenting us with a far greater threat towards our survival than 1939; and that the measures adopted must rise to this unprecedented challenge…The real question arising from all of this is: can governments persuade their peoples that we face nothing less than a war against climate change, with the need for the same determination and self-sacrifice as was seen 60 years ago (Meacher 2007a; see also Meacher 2007b).

After more than a half century, World War II appropriately continues to maintain a tight hold on the popular imagination in many parts of the world, but its cultural resonance is arguably strongest in the UK because of the severe hardship that was inflicted and the strictness of the resultant austerity regime (see, e.g., Smith 2000; Connelly 2004; Hennessy 2006, 2007; Kynaston 2007). Given these circumstances, it is not surprising to see discursive entrepreneurs invoking this momentous conflict as both the benchmark to measure the societal risks of global warming and the rallying call to mobilize the public around the need for strenuous action.[8] There is broad recognition that nostalgic sentiments about "fair shares for all" strike a powerful chord among key parts of the electorate and, as such, constitute an important strategic rhetorical resource (Monbiot 2006; Newman 2006). Indeed, some commentators have even compared politicians who have expressed wavering commitments on climate change to Neville Chamberlain, the former British *Prime Minister* who so egregiously misinterpreted German intentions during the prelude to the war.[9] Other analysts have speculated on whether the need to pursue drastic cuts

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[7]In the immediate aftermath of Tony Blair's 2007 announcement to step down as Prime Minister, Meacher evinced an intention to challenge Gordon Brown for leadership of the Labour Party, but he quickly stood aside (Walker 2007).

[8]Environmental organizations in the UK have been more reticent in invoking militaristic representations to gain support for their climate change initiatives. Some groups, notably the Green Skies Alliance and Cool Earth, have not backed away entirely from the deployment of such imagery (see Turner 2005; Bradley 2007).

[9]Former British Prime Minister Neville Chamberlin, in an effort to deescalate tensions with Germany, met with Adolf Hitler in September 1938 and concluded the so-called Munich Agreement. The accord established a non-aggression pact between the two countries (as well as with France and Italy) and recognized German annexation of the former Czechoslovakian territory of Sudetenland. Upon returning to London, Chamberlin made his notorious declaration that he had achieved "peace in our time." In March of the following year, Germany invaded the rest of Czechoslovakia and in September attacked Poland, thus ending Chamberlin's "appeasement" strategy and marking the formal start of World War II.

in greenhouse gas emissions has become sufficiently urgent to justify the cultivation of a "blitz spirit" (The Economist 2006; Roodhouse 2007a; see also Calder 1995; Hume 2008).[10]

3 Consumer regulation and climate change

While some observers might dismiss recent efforts by British discursive entrepreneurs to elevate climate change to the status of war as mere sloganeering, it is important to recognize that the deployment of such emotional language can play an instrumental role in reframing policy discussions in the UK and elsewhere. If the public begins to understand global warming as tantamount to armed conflict, interventions that have until now been deemed inappropriate or unduly risky could come to be seen in a more acceptable light. In particular, various geoengineering strategies like ocean-iron fertilization, stratospheric sulfur injection, and, planetary reflective mirroring (i.e., "sunshading") might evolve into timely and necessary pursuits (Allenby 2007; Virgoe 2008; Schneider 2008). To appreciate the pace at which transformations in political viability can sometimes come about, it merits recalling that less than a decade ago the prevalent sensibility was that the lay public was resistant to carbon capture and storage (Anderson and Newell 2004). Despite retaining certain reservations, social scientific research suggests growing popular preparedness to consider the stepwise deployment of this technology (Gough et al. 2002; Van Alphen et al. 2007; Ramírez et al. 2008).

There is moreover significant historical evidence that "war" and its associated apprehensions can bring about sweeping social realignments and radically alter the political landscape (see, e.g., Calder 1995; Noakes 1998). For instance, the exigencies of World War II ushered in previously unthinkable changes in gender equality, societal norms, and race relations in many combatant countries and prompted sweeping changes in governmental support for science and technology (Marwick 1974; Costello 1985; Geppert 2003; Halperin 2004). Although it is still early in the nascent militarization of climate change, the progression that is currently underway in the UK seems to suggest that the propagation of war-imbued imagery can catalyze serious public consideration of robust coercive measures (McLean 2008; Jaeger et al. 2008).

A resolute step along this route was taken in 2006 when the former Environment Secretary, David Miliband, made a formidable speech before the government's Audit Commission endorsing the creation of a rationing scheme to limit personal carbon emissions. He began his presentation by reaching back in time for a historical parallel and describing long-standing Parliamentary inattention to the disease and

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[10]The use of World War II analogies when discussing climate change has not been confined to the UK. In the United States, for instance, opponents described a 2007 proposal by a Texas-based company to build eleven new coal-fired utility plants as the "Mein Kampf of the global warming wars" (Carey and Arndt 2007). Separately, some American commentators have relegated climate change skeptics into the same category as Holocaust deniers. *Grist*, a popular environmental news website (http://www.grist.org), published a discussion in 2006 asserting that the government should subject global warming dissenters to a Nuremberg-type proceeding. The author of the piece eventually recanted his contentions (see Jacoby 2006).

stench that had at one time emanated from the River Thames. He related how the situation festered for decades until the summer of 1858 when the odor became so rancid and overpowering that it was necessary to evacuate the House of Commons. After reviewing the challenges of constructing a comprehensive sanitary system to manage London's sewerage, Miliband invited his audience to consider the following thought experiment.

> Imagine a country where carbon becomes a new currency. We carry bank cards that store both pounds and carbon points. When we buy electricity, gas, and fuel, we use our carbon points, as well as pounds. To help reduce carbon emissions, the Government would set limits on the amount of carbon that could be used. Imagine your neighbourhood. Each neighbour receives the same free entitlement to a certain number of carbon points. The family next door has an SUV and realize they are going to have to buy more carbon points. So instead they decide to trade in the SUV for a hybrid car. They save 2.2 tonnes of carbon each year (Miliband 2006).

For all of its apparent novelty, Miliband's proposition to limit individual access to the atmosphere was not an entirely new idea and its formal genesis can be traced to a proposal developed during the early 1990s under the auspices of the Global Commons Institute (GCI), a London-based research and advocacy organization (Meyer 2000; see also Barrett 1995; Fleming 1996, 2007).[11] The GCI formulated the concept around the notion of "contraction and convergence" and the global distribution of annual carbon allowances (or "entitlements"). Initial allocations could be made either to entire countries or to individual consumers on an equal-shares basis and under ideal circumstances would be independent of preexisting emission patterns. Consumers would pay for energy with both money (in cash or credit form) and "carbon points." A running tally would be stored on a computer-readable plastic "smart" card and a proportional number of points deducted from the user's account each time he or she purchased gasoline, air travel, or fossil-fuel energy for household use.[12] Consumers that exceeded their annual thresholds would need to purchase additional shares from participants who had unused rations and each year the overall allocation would be reduced ("contraction") and carbon emissions eventually equalized around the world ("convergence").[13]

Mainstream policy makers that have considered the issue have generally sought to characterize personal carbon trading as a pragmatic extension of existing "cap and trade" programs and hence little different from other tradable allowance systems already in operation today (e.g., European Union Emissions Trading Scheme). In contrast, some discursive entrepreneurs have sought to evoke the connections that the idea shares with the rationing of food and other household articles during

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[11]Further information on GCI is available at http://www.gci.org.uk. See also Meyer (2000, 2004), Hillman (2006), and Starkey and Anderson (2005). A useful bibliography on personal carbon allowances and related ideas is available in Fleming (2007).

[12]Although more complicated to implement, the scheme could be expanded over time to include the "embodied carbon" contained in a more expansive array of consumer products.

[13]See Ohl et al. (2008) for a similar treatment based on the use of ecological footprinting.

World War II. For instance, Mayer Hillman, a leading advocate of tradable carbon allowances, asserts

> [World leaders] could learn invaluable lessons from history if only they were willing to do so. In the years leading up to the Second World War, British and other governments spent a long period in denial of the threat of Fascism and a further period trying to deal with it by appeasement. Both these mistakes proved costly. Finally, leaders faced up to the dreadful truth, and the struggle for survival could begin in earnest. So it has been with the threat of climate change: years of denial, followed by years of kidding ourselves that it could be dealt with painlessly. Only if we face up to the severity of the crisis can we even begin to take appropriate action (Hillman 2005).

With partial financial support from Miliband's ministry, the Royal Society for the Encouragement of Arts, Manufacturers, and Commerce (RSA) launched a 3-year pilot project called Carbon*Limited* that involved more than 5,000 people and sought to demonstrate how personal carbon trading could work in practice (Prescott 2008). Reports also began to appear that the government was planning to issue individual carbon cards on a countrywide basis by 2013 (Adam 2007; see also Fawcett et al. 2007) and the UK Department of Food, Environment, and Rural Affairs (DEFRA) commissioned a "pre-feasibility analysis" to consider the potential impacts of an allowance scheme. Prince Charles continued to champion militarization and, in a speech before the European Parliament, urged the world to wage war against "the doomsday clock of climate change" (Watson 2008).

During the months that the DEFRA study was being prepared, Miliband moved over to become Secretary of State for Foreign and Commonwealth Affairs and in his new role ceased, at least for the time being, to discuss climate change in terms of personal carbon trading. By the time DEFRA (2008) released its report in the spring, the initial wave of enthusiasm had crested and the published assessment ultimately offered a downcast view of the concept, though the Department did indicate an interest in continuing to monitor further developments surrounding the idea. A separate study by the Environmental Audit Committee (2008), took a more upbeat view and noted, "[P]ersonal carbon trading could be essential in helping to reduce our national carbon footprint."

Despite the collapse of international financial markets during the summer of 2008 and the ensuing recessionary slide of the global economy, it seems unlikely that this divided appraisal will be the last word on the subject. David Miliband emerged midyear as a credible candidate for the leadership of the Labour Party and his elevation triggered a process of public vetting that necessarily directed fresh scrutiny toward the proposition (Hinsliff 2008; Toynbee 2008). In response to charges that he could have worked harder to advance personal carbon trading while still Environment Secretary, Miliband observed, "[T]he whole point about good ideas is that they don't die" (Hinsliff and Helm 2008). Indeed, a new opportunity to reinvigorate the debate came about with the appointment of his brother, Ed, as head of the government's newly established Department of Energy and Climate Change (Stratton 2008; Wintour and Stratton 2008; Lawson 2008). Meanwhile, the academic community used the interregnum to expand its understanding of the programmatic dimensions of managing carbon at the individual level (Druckman and Jackson 2008), to link to other prominent issue-areas like public health and obesity (Egger 2007, 2008;

Chatterton et al. 2009), and to identify the governance implications of personal carbon regulation (Seyfang and Paavola 2008; Howell 2009).

4 Consumer regulation in Britain during and after World War II

Champions of consumer regulation to address climate change have put forward their plans under a variety of guises: personal carbon allowances, tradable energy quotas, domestic tradable quotas, carbon entitlements, and tradable personal pollution allowances (see, e.g., Barrett 1995; Meyer 2000; Hillman et al. 2008; Fleming 2007). Though there is a conspicuous tendency, as noted above, for policy makers to place these closely related ideas under the conceptual umbrella of "cap and trade" schemes, they are more appropriately viewed as rationing programs. This understanding opens up a storehouse of relevant historical experience pertaining to the utilization of consumer regulation under exigent conditions that could potentially inform government strategies on eventual deployment, especially with respect to public response (see also Roodhouse 2007b).

With the exception of the oil crises during the 1960s and 1970s and the use of taxes and other forms of consumer regulation to control access to cigarettes, alcohol, and illicit drugs, affluent countries have had little recent experience with goods rationing (Musial and Stearns 1973; Pisarski and de Terra 1975; Bezdek and Taylor 1981; Thorpe 2007).[14] Indeed, prevailing neoliberal policy prerogatives over the past several decades have actively resisted such interventions on the basis that any infringement on or interference with consumer demand constitutes unjustified intrusion on consumer sovereignty (Redmond 2000; Gowdy and Walton 2003; Roff 2007; Schor 2007). To find the most recent application of the extensive and rigorous use of rationing in an affluent country, it is accordingly necessary to go back in time to the period of the Second World War and its aftermath.

The consumption control regime that the British government began to implement upon the outbreak of hostilities in 1939 was initially modeled on arrangements developed during World War I and was justified by the need to ensure equitable allocation of basic foodstuffs, to economize on shipping space, and to manage expected shortages due to the military diversion of raw materials.[15] Official planning during the early phases was facilitated by the fact that relevant agencies had maintained a high degree of administrative continuity during the interwar years through the establishment of a series of coordinating committees under the authority of Sir William Beveridge. These working groups had responsibility for regularly updating and reviewing plans for the implementation of wartime controls on consumption. Critical for the civil servants engaged in this task was an acute understanding of the relationship between sufficient household provisions and civilian morale. In this

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[14]The discussion here makes a distinction between managing demand for goods vs. services. There has been in recent years vigorous debate around the use of rationing as a means of controlling access to healthcare services.

[15]Social and economic historians have contributed to a sizable literature on wartime and postwar rationing in the UK. Useful sources include Hopkins (1963), Sissons and French (1986), Addison (1995), Brooke (1995), Harris (1997), Longmate (2002), Hennessy (2006, 2007), and Kynaston (2007). The following discussion draws heavily on the account of Zweiniger-Bargielowska (2000).

sense, wartime consumer regulations were primarily designed to ensure adequate supplies at reasonable prices and these policies proved to be remarkably effective. Food expenditures fell by 15% from the pre-war level, while money spent on clothing declined by more than 60% and outlays on miscellaneous household goods fell variously by between 25% and 75%. Because of a lack of fuel for civilian purchase, personal automobile use was virtually nil during the height of the war (Zweiniger-Bargielowska 2000).[16]

Two government branches were principally responsible for the regulation of consumption. The Ministry of Food, established at the very start of the war, had extensive influence on the lives of consumers because of its role in setting ration levels and imposing price controls on basic agricultural commodities. The Board of Trade came into existence in 1941 to manage access to clothing, shoes, furniture, toys, and a variety of other consumer goods and in this capacity fulfilled a secondary administrative function. Furthermore, the Board did not have the same expansive powers to oversee supply and demand—it did not for instance contract with producers and take ownership of goods as was the case for the Ministry of Food—but rather relied to a greater extent on production quotas.[17]

In the case of food, the primary means of consumption regulation was based on flat-rate rationing. This system required consumers to register with a specific retailer and to acquire each week all of their rationed provisions through this channel. Such an arrangement was the foundation for the concept of "fair shares for all" and everyone was entitled to the same allowance regardless of age, occupation, or other considerations.[18] To ensure adequate supplies, retailers received stock in proportion to their number of registered customers and were then required to collect coupons in exchange for the distributed goods. The government carefully controlled the prices of rationed products to keep inflation in check and to ensure that consumers could afford to purchase their weekly share.

There can be no doubt that these arrangements created considerable hardship for people regardless of income or social class (Hollingsworth 1983; Huxley et al. 2000). Despite an endless stream of menu advice published in newspapers, broadcast on radio programs, and distributed through public information campaigns, meals were typically bland and assembled from a narrow and unchanging assortment of staple ingredients. Public complaints about the sufficiency of stocks were not uncommon during the earliest stages of implementation, but after the first several months supplies stabilized and popular support steadied owing to this continuity.[19]

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[16]Zweiniger-Bargielowska (2000) argues, "This reduction in consumption was unprecedented in modern British history in terms of magnitude and duration." See also Roodhouse (2007a, b).

[17]Notable exceptions were the rationing of clothing and shoes by the Board of Trade.

[18]There were, of course, deviations from this general rule. For instance, pregnant women and nursing mothers received a supplementary ration of eggs, fruit, and milk and children under the age of five were allocated a smaller meat ration and no tea ration.

[19]Evidence suggests that wartime food policies had the effect of closing the long-standing nutritional gap across social classes in the country. Zweiniger-Bargielowska (2000) observes, "Although the middle class continued to consume more eggs and fruit while the working class ate greater quantities of potatoes and bread, income differentials in consumption of butter, milk, and meat declined substantially. With regard to nutrients, the large gap in calorie consumption disappeared...For the first time ever the gap in vitamin and mineral intake also disappeared."

Throughout the war, manual workers in heavy industries expressed the greatest dissatisfaction and contended that strenuous work entitled them to larger rations.[20] Some critics of government policy were alarmed about the potential for malnutrition, but the historical record offers no credible evidence that the public suffered from any systemic nutritional deficiencies and some public health indicators actually showed improvement in wellbeing (see, e.g., Berdanier 2006). In fact, most commentators agree that low-income consumers were disproportionate beneficiaries of wartime policies because the system provided a guaranteed supply of food at affordable prices. Large families—in contrast to single individuals and smaller household units—also derived certain advantages because more people living under a single roof created greater flexibility in the management of rations.

Despite disaffection in some quarters, public support for the consumer regulations remained overall quite high throughout most of the war. Civilians displayed notable endurance in dealing with coal shortages, unappetizing food, bombing raids, evacuations, and the malaise of wartime uncertainty. Historical reports are especially replete with accounts of intrepid women who had to keep up with ever-changing rationing rules and to endure endless queues to secure hard-to-come-by items like towels, sheets, and cooking pots (Smith 1996; Longmate 2002; Kynaston 2007). The end of the war in 1945 brought pangs of hopefulness that the long era of austerity would soon be over and that a period of consumer abundance would take its place. These expectations though were soon set aside as it became increasingly apparent that the war had exacted a heavy price on the country and its ability to satisfy the material aspirations that had accumulated during the preceding 6 years.

It is therefore probably not surprising that the public's willingness to countenance stringent consumer regulations began to falter during the postwar years. A combination of patriotic fatigue, new rounds of restrictions, and onset of a succession of unusually harsh winters led to mounting disaffection during the second half of the 1940s. Even bread was subject to rationing between 1946 and 1948 to conserve on wheat and a severely reduced potato crop in 1947 led to the imposition of partial controls on the distribution of this essential commodity. Throughout these years, the Labour government continued to argue that wartime-like consumer regulations were necessary to stimulate and maintain British exports. The socialist-leaning wing of the Party moreover tacitly claimed that the controls helped to dampen consumer impulses and to promote social cohesion and equality. Then, just as the most pressing problems began to abate during the latter part of the decade, a series of financial crises (including a devaluation in 1949) and the eruption of the Korean War in 1950 created new sources of economic volatility. Eventually many of the party's core supporters (including a significant number of women), emotionally and physically exhausted by a generation of protracted austerity, abandoned the Labour Party during the 1951 general election. The Conservatives were returned to power and promptly began to dismantle the legacy of rationing and other postwar controls on consumption.

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[20]The government addressed this issue to some extent by creating an extensive network of canteens that provided off-ration meals to workers.

5 Taming the black market: lessons for personal carbon rationing

The success of personal carbon rationing will inevitably hinge on the extent to which an eventual scheme is able to retain public legitimacy. Historical experience suggests that programmatic integrity is a function of two closely related features: the capacity to compel universal participation and the ability to cut down on illegal transactions. Research to date has focused on operational details in terms of the functionality of "smart" cards and the establishment of computerized linkages among financial institutions (see DEFRA 2008).[21] This focus is no doubt appropriate because a modern rationing system will need to run on a technologically intensive platform rather than rely on unwieldy paperwork and a welter of supervisory and enforcement personnel as was the case in prior eras. It is at the same time important not to overestimate the capabilities of these electronic arrangements or to dismiss the ability of even the most fastidiously designed software to quash human propensities for avarice and duplicity. Accumulated evidence ably demonstrates that the imposition of constraints on consumer demand inevitably leads to unlawful activity and black markets spring up whenever and wherever auspicious opportunities exist (Smithies 1984; Schlosser 2003). The British experience during and after World War II provides particularly instructive guidance that can inform this dimension of an eventual personal carbon rationing scheme.

It is first necessary to acknowledge that there persists across Britain (and beyond) the sense that the public, regardless of social circumstances, gallantly embraced wartime consumer regulations and that illegal trading was minimal during this period. While these gauzy recollections are understandable, historians have strenuously challenged the embellishment that the war years were marked by equitably shared civilian sacrifice (see, e.g., Calder 1995). A careful review of the recorded annals turns up widespread evidence of evasion, profiteering, forgery, and other prohibited practices. Zweiniger-Bargielowska (2000) relates the evocative account of one informant who reported, "[I]t makes me smile when some of these people say they never have anything to do with the Black Market—just show me where it is and I'll go to it."

Any effort to glean lessons from this earlier era of rationing therefore requires clear-eyed consideration of the role that the black market played as an alternative source of provisioning for many households.[22] Organized rackets were unexceptional, especially during the postwar period, but it was the more rampant petty skirting of administrative authority across supply chains that repeatedly threatened to undermine the consumption control regime. Concomitantly, enforcement resources were insufficient for the task so the Ministry of Food and the Board of Trade had to rely on publicity and bluster to maintain satisfactory levels of compliance. Though

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[21]Cost-effectiveness has also been a prominent consideration in evaluations to date of the efficacy of personal carbon management. The apparent importance of this criterion is a departure from historical experiences where organizational transparency and perceived fairness were the foremost issues.

[22]Despite its considerable scope, the black market seems to have played a less pronounced role during World War II in the UK than it did in other countries. For analyses of illegal wartime trading in the United States, see Mills and Rockoff (1992), Zweiniger-Bargielowska (2000), and Cohen (2003). Refer to Sanders (2008) for a discussion of black markets in France, Steege (2007) for the case of Germany, and Griffiths (2002) for an evaluation of Japan.

the ultimate effectiveness of these activities and the full scale of the black market are difficult to gauge owning to the paucity of data on unlawful transactions, some broad generalizations are nonetheless possible.

With respect to the regulation of food, over-charging, under-the-counter sales by retailers, barter, and tipping were not unknown practices, but it was "illicit slaughter" by farmers that consistently jeopardized the authority of the system. As a practical matter, no regulatory arrangement could have been sufficiently comprehensive to police tens of thousands of farms and the illegal sale of meat across the farm gate (or even to monitor irregularities carried out by the far smaller number of local retail butchers). Restaurants and hotels were also complicit in evasive activities involving food. Even after a maximum price of 5*s* was imposed on restaurant meals in 1942, establishments routinely circumvented the regulation by reapportioning charges for alcohol and service.

Unlawful transactions involving clothes and textiles were also prevalent during the war and became even more widespread during the post-1945 period. Clothing, be-cause it was not perishable and could be stored, created especially difficult regulatory problems and challenged the fundamental ideal of "fair shares for all." As Zweiniger-Bargielowska (2000) observes, "[T]here was a strong incentive to steal or forge ration books and coupons, and consumers could sell their ration book and apply for a replacement on the grounds that they had lost it." While it was technically against the law to use detached coupons to buy clothing, retailers regularly overlooked this provision and accepted them in this form. The rules required shopkeepers to channel the coupons back up the supply chain to wholesalers, suppliers, and eventually to the Board of Trade, but the process of counting and recounting thousands of slips of paper at each point imposed laborious and, and ultimately unworkable, clerical burdens. As a result, the distribution system was rife with opportunities for fraud.[23]

If these circumstances were not enough to discourage reliable participation, the rules pertaining to the rationing of clothing were both exceedingly complex and replete with loopholes.[24] As soon as officials acted to shut down one set of criminal practices, new ones would spontaneously appear. As mentioned above, the volume of requests for coupon replacement was very likely far out of proportion with the number of legitimately lost or stolen ration books. Some people would file repeatedly for replacements and the overall effect was a veritable flood of surplus coupons into the market. Eventual implementation of special protocols for issuing replacements, burdensome application procedures, and other purposeful bureaucratic impediments had the effect in due course of limiting the most egregious scams. However, a series of administrative blunders by the Board of Trade at the end of the war eroded any remaining measures of public confidence in the clothes-rationing system and it was ultimately discontinued in its entirety in 1949.

The arrangements on petrol rationing are probably most directly relevant for current purposes and this set of stipulations distinguished between commercial users (comprising cargo haulers and thus under the administrative control of the Ministry

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[23]The problem of counting and processing clothing coupons was eventually resolved in 1942 when the Board of Trade established a program in cooperation with commercial banks that required traders to open coupon-banking accounts.

[24]Cosmetics was another product category that was subject to a large amount of black market activity due to low raw material and storage costs, high valued added, and very strong demand.

of Transport) and private motorists (under the aegis of the Ministry of Power and Fuel). The category of private motorists was divided into three further subcategories at the start of the war: essential users (e.g., doctors) had an annual allocation of approximately 9,000 miles, semi-essential users (e.g., commercial travelers) had an annual allocation of approximately 4,800 miles, and non-essential (or basic) users had an annual allocation of 1,800 miles for recreational purposes. During the early 1940s, the government progressively reduced rations for essential and semi-essential motorists, but initially preserved the non-essential ration to maintain civilian morale. By 1942, however, protracted and severe shortages of shipping capacity led to the elimination of the annual allocation for pleasure driving and the discontinuation of supplies to non-essential users until the end of the war.

Violations of the gasoline regulations tended to take three forms: fraudulent use of coupons, illegal transfers of fuel from commercial to private vehicles, and presentation of forged or stolen coupons. These problems for the most part remained manageable during the war, but by the postwar period contraventions of the rules had become fairly widespread. In 1947, black market transactions accounted for an estimated 10% of total automobile-fuel use (Zweiniger-Bargielowska 2000). The non-coupon sale of gasoline to valued customers and outright retailing of coupons were also common practices. In addition, because of the difficulty of precisely calculating the needs of commercial users, truck drivers often had surpluses that they could sell to private users. These illicit conveyances eventually led after the war to the use of colored dye to differentiate commercial fuel (tinted red) from its private counterpart (tinted white). Enforcement actions then came to be focused on roadside inspections of private vehicles to check if they were running on the appropriately colored fuel. Nonetheless, consumers deftly modified and remodified their evasive tactics to stay a step ahead of the inspectors. For instance, private users learned that careful dilution of red gasoline made detection of the dye difficult in roadside tests.

6 Conclusion

Political controversies are rarely static, but rather continually evolve as rivals seek to gain traction and to shift the terms of public discussion in ways that strengthen their own interests. Dissatisfied with the anemic metaphors that have been used to date to capture the quintessence of global warming, a diverse group of discursive entrepreneurs has been working to build a new conceptual frame around the problem. Evidence from recent media reports suggests that a widening circle of people in the UK is now describing climate change as a challenge tantamount to war. This rhetorical shift is more than an innocuous alteration in language use, but appears to be creating conducive conditions for predisposed policy makers to advocate for more rigorous and ambitious proposals to reduce greenhouse gas emissions. In particular, the former Environment Secretary (currently Secretary of State for Foreign and Commonwealth Affairs) David Miliband has been able to use this space to initiate a public discussion on the regulation of carbon emissions at the individual level.

It is important not to underestimate the need to tread carefully when initiating debate on a controversial proposition like the curtailment of material consumption. Consumerism—understood as a lifestyle embedded in the acquisition of ever-greater volumes of commercial goods—is now deeply embedded in individual identity and

contemporary social and cultural ideals. Political encroachment onto this terrain requires creation of an appropriate *ambiance politique*. The experience of the former American president Jimmy Carter, the last major elected political leader to instigate a forthright debate about consumption, provides an enlightening (negative) example of the risks of premature engagement. In a speech given in 1979, he delivered a dose of harsh public admonishment and sought—albeit with devastating personal repercussions—to set the stage for a cultural shift.

> In a nation that was proud of hard work, strong families, close-knit communities, and our faith in God, too many of us now tend to worship self-indulgence and consumption. Human identity is no longer defined by what one does, but by what one owns. But we've discovered that owning things and consuming things does not satisfy our longing for meaning. We've learned that piling up material goods cannot fill the emptiness of lives which have no confidence or purpose (Carter 1979).

Americans roundly rejected this reprimand and Carter's strategy to ration the retail sale of gasoline proved ultimately transitory and his more systematic initiatives—such as a proposition to impose a ceiling on oil imports—never garnered much political support (Horowitz 2005). Miliband seems to understand this lesson and is presently not allowing himself to get ahead of the discursive entrepreneurs who are preparing the field in front of him. Moreover, his youthfulness and generally buoyant public persona work to his advantage and will likely enable him to avoid being tripped up in the same way as the far more priggish Carter.

There will nonetheless still be major obstacles to overcome. The heterodox economist Kenneth Boulding argued in a somewhat different vein some years ago that the affluent countries of the world were unlikely to regulate consumption in the absence of deep and pervasive human misery (see Tainter 2008). However imperfectly it may have worked in practice, the British experience during and after World War II demonstrates that under at least certain circumstances, coercively imposed limitations are feasible. The dilemma though is that following a half century of extraordinary material abundance, public commitments to consumerist lifestyles are now more powerfully resolute. Moreover, regardless of how effectively the case is made for climate change as war, atmospheric warming lacks the immediacy and tangibility of aerial bombardment and the associated peril to human life.

Despite these caveats, reflection on the wartime and postwar experience in the UK offers at least five provisional insights that are likely to be instructive in designing consumer regulations to limit greenhouse gas emissions. First, it is untenable to expect that strict controls on consumption will work effectively on an open-ended basis and policies must be guided by a clear, defining objective. In other words, the public will only tolerate sacrifice if there is a satisfactory end in sight.

Second, consumer regulations cannot be predicated on static legislation. This is a fast-paced and evolving proposition and it will be difficult to anticipate all contingencies at the onset. Government officials responsible for ensuring effective implementation must be empowered to adapt to continually changing circumstances without having to go through cumbersome and time-consuming processes to obtain legislative reauthorization.

Third, black markets are inevitable outcomes of the regulation of consumption and the combination of scarcity and high demand will always lead to various forms

of innovative commerce. On one hand, policing action to completely eradicate these activities will likely be ineffectual in the short term and counterproductive in the long term. On the other hand, excessive tolerance for illegal trading will lead to the erosion of public support for the consumption control regime. There is no easy solution to this dilemma other than agile and adept management.

Fourth, consumer regulations must be built on a strong political foundation. In the absence of such resolve, the system will lose legitimacy and rapidly break down. Appeals to patriotism, nationalism, selflessness, or collective spirit can be helpful for a time in creating and maintaining civic commitment, but the UK government (and others that may in due course decide to venture down this road) must be prepared for the eventual dissipation of solidarity founded on jingoism or altruism.

Finally, while advanced information and communication technologies will invariably provide the administrative backbone of an eventual demand-management program for carbon, the ultimate effectiveness of such a system will always be partial. It is, for instance, extremely unwarranted to expect that "high tech rationing" will eliminate opportunities for evasion and fraud. It will, as a result, be necessary to be prepared to use customary enforcement tools to limit the corrosive effects of unlawful practices.

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