Light Bulbs and Bright Ideas?:
The Global Diffusion of a Ban on Incandescent Light Bulbs

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On April 25, 2007 the Federal Government of Canada announced that it was phasing out the use of incandescent light bulbs by 2012. Along with improving energy efficiency the presentation of this policy was also linked with broader environmental initiatives and is a key part of the government's strategy to address concerns about climate change. When announcing this policy, Natural Resources Ministers Gary Lunn argued the ability of this policy innovation to reduce greenhouse gas emissions in Canada by more than six million tonnes per year (Lights to go out on Inefficient Bulbs by 2012, 2007).[1]

Interestingly, this policy choice is not unique to Canada. Since early 2007 we have seen the emergence of multiple efforts in a number of states in both the Global North and Global South to phase out the use of inefficient incandescent light bulbs and/or to promote the increased use of compact fluorescent light bulbs (CFLs). Government phase out policies can be found in a wide range of countries including Australia, the United States, Cuba and the Philippines. Together those states which have introduced phase outs comprise about one half of all bulbs consumed per year—6.5 billion of the 12.5 billion global incandescent bulb market (Waide 2007b, 2). All of these efforts combined do have the potential to create important environmental benefits. A 2006 book released by the International Energy Agency (IEA), asserted that lighting accounts for 19% of power consumption globally, 3% of global oil demand and 1900 million metric tonnes of CO_2 (Waide 2006). A shift to the increased use of more efficient forms of lighting, like compact fluorescent light bulbs (CFLs) or light emitting diodes (LEDs), should result in substantial savings in energy consumption and CO_2 output. This paper will examine the global diffusion of these policies to phase out inefficient incandescent light bulbs.

However, one conceptual clarification is necessary. The policies we are discussing are best conceived of as phase outs not bans. Although commonly used in everyday conversation the term 'ban' can lead to two different misconceptions about the policies in question. First, it can imply that policies have explicitly forbid the use and sale of incandescent bulbs. However, it is more common that these policies work to phase out the use of incandescent bulbs through regulations that set energy efficiency requirements for the sale of bulbs. In at least some of the states in question if an incandescent bulb with a high enough energy efficiency level were developed its sale would still be legal even after the official phase out date was passed. For example, in Australia the energy efficiency standards that will phase out incandescent bulbs will also serve to phase out a less efficient brand of halogen bulbs as well (Australian Government 2008). The second misconception is that this policy has been universally applied to all types of incandescent bulbs, which has not been the case in many states. The primary aim is the common screw based bulbs used in many lighting fixtures, not necessarily all bulbs. For example, in Canada some types of incandescent bulbs including oven lights and some types of bulbs used in medical equipment are not subject to the phase out. This is because the Canadian Government's regulations to phase-out inefficient bulbs are intended to take into account the availability of

[1] Part of the reason that these benefits are also potentially dramatic can be linked to a study which argues 77 percent of the Canadian residential lighting market is still served by incandescent light bulbs with compact fluorescent light bulbs (CFLs) comprising only 5 percent (Branswell and Reid 2008).

effective energy efficient replacements (which are based on a number of attributes like cost, energy savings, safety and functionality) (Natural Resources Canada 2007/35(b)).

This paper will explore the emergence of policies phasing out incandescent light bulbs across the globe, arguing that this is a clear example of global policy diffusion. It will show that in this case international norms, particularly the norms of liberal environmentalism, are central to explaining why this policy has diffused. However, it will also illustrate that norms do not act in isolation and that factors at the international and domestic levels are important in facilitating or impeding policy diffusion. This leads to a number of overall findings in the paper. Looking specifically at the area of environmental policy we see that the norm of liberal environmentalism, the predominant norm in creating environmental policy in the last two decades, has supported the spread of these policies. Moreover, these findings reinforce two broader points about the study of global policy diffusion. First, studies of diffusion need to look beyond simple interest-based decision-making and also focus on the role of norms in driving the spread of policies. In some cases where norms are discussed in the relation to policy diffusion the focus is on how diffusion leads to the global spread of certain norms (Jörgens 2004). However, we argue that in this case it was the convergence around a global norm that drove the diffusion of policy. Second, it shows that explaining diffusion requires a sophisticated look at the relationships between public and private actors at multiple levels.

Following this introduction, the next section will briefly discuss the concepts and theories in the approach of policy diffusion. In the third section a basic timeline of developments in this policy area will be outlined to provide a broader sense of the diffusion process and the actions of individual states. The global diffusion of this policy was not inevitable as there are many environmental policies that fail to diffuse. Therefore, the fourth section will describe the key factors in the global diffusion of this policy innovation. Following this section, the two of the potential externalities of this policy choice will be discussed – the focus on creating harmonized standards for CFLs and other efficient light bulbs and the need to manage the mercury contained within CFLs (which are currently the primary replacement for incandescent bulbs) throughout their life cycle. Finally, the paper will conclude by drawing all of these elements together.

Global Policy Diffusion

At an abstract level it is possible that the emergence of policies to phase out incandescent light bulbs have occurred in multiple states completely independent of one another. There are two main reasons to discount this argument. First, in the era of global communications where states and other actors are clearly aware of and in contact with each other, the assumption that these developments are occurring in isolation is significantly less likely. Second, in the specific case of the phase out of inefficient incandescent light bulbs, it is clear that different states were aware of the actions of others. This will be seen in the work of the International Energy Agency (IEA) and evidence that various states were aware of the actions of others that are discussed in more detail later in the paper.

Looking at international policy convergence in environmental policy there appears to be two distinct processes at work. The first is the establishment of international treaty-based regimes, like the Montreal or the Kyoto protocols. In this case there is an explicit international effort to globally harmonize the policies of states. Therefore, one is likely to find clear evidence of collective or hierarchical decision-making at the international level, which is then

implemented through the national arena. In the case of a phase out of inefficient incandescent light bulbs these elements are not present.

The second driver of policy convergence is through global policy diffusion. In framing the discussion in this manner we are working within the literature that treats policy diffusion as a process rather than as an outcome (Elkins and Simmons 2005). Therefore we define policy diffusion as the "process by which policy innovations are communicated in the international system and adopted voluntarily by an increasing number of countries over time" (Busch, Jörgens and Tews 2005, 149; see also Rogers 2003).

In this paper, the key qualifications that make a policy's spread a situation of global diffusion are 1) the lack of formal or contractual obligations (as one would see with an international treaty) and 2) the policies emerge as the outcome of a horizontal process with individual actors working in a decentralized regulatory system (Busch et al. 2005). Both conditions are important, as it is possible for a policy convergence to meet only the first. One situation where the spread is lacking formal obligations but not horizontal would be in cases where there is a hegemonic state that uses its power to coerce other states to follow similar policy structures. Beyond hegemonic power variations of this coercion may also be through other economic, political or military threats, direct intervention or the practices of conditionality (Busch and Jörgens 2005). If any of these elements are present, the situation is not really one of diffusion because there is a powerful actor acting to centralize the regulatory system and coordinate the actions of states, even though formal treaties may not be present. These cases cannot be included under the process of policy diffusion as they represent a different form of convergence.

In the case of global policy diffusion a state makes an independent decision to adopt a particular policy and is not coerced. This is not to argue that the policy choices of other states are completely inconsequential. In many ways the system that emerges is interdependent but also uncoordinated. The process is interdependent in the sense that governments factor the actions of other governments into their policy choices but they are not required to adopt similar policies (Elkins and Simmons 2005; Busch and Jörgens 2005). Moreover reciprocal influence between states is more likely given the complex communicative relationships that exist (Kern, Kissing-Nat, Landmann, Mauch and Loffelsend 2001). Yet these connections do not remove the independence of the state; individual policy decisions are not affected by coercion or intentional coordination by another actor.

However, not all policies diffuse globally, and one must consider what elements are necessary for a particular policy to spread beyond its borders and around the globe. Drawing on Busch et al. (2005) we argue that the driver of the diffusion process is a complex interplay of three categories of factors: policy characteristics, the dynamics of the international system, and domestic factors. The first category, policy characteristics, refers to the specific features of a policy, including elements like the expected cost and the norms that legitimize it. Although Busch et al. place this at the bottom in their ordering, in this case of policy diffusion we find that policy characteristics, particularly the norms that underpin it, are a primary part of the explanation. The second category is the dynamics of the international system, which takes into account the effects of international communication and the channels through which policies diffuse, as well as the role that international organizations can play in promoting particular policy choices. In this case important elements can include the ease of communication and the forums in which the communication takes place. Kern et al (2001, 6) assert that convergence in policy innovations is strongest in a situation where there is an international institution supporting

it. Finally, domestic factors will also affect the extent to which a policy diffuses. This category encompasses the relationships between domestic institutions, interests, capacities and policy styles and the influence they have on the policy choices of the state (Busch et al. 2005, 3). In both the second and third set of relationships we also find that the process of policy diffusion is facilitated by public and private actors (Kern et al. 2001). Before we examine the role of these three factors in the global diffusion of a phase out of inefficient incandescent light bulbs in detail, the paper will provide a timeline of the global diffusion of this policy.

The Spread of Policies to Phase-out Inefficient Incandescent Light Bulbs

This section lays out the various decisions to phase out inefficient incandescent light bulbs in context, in particular the developments between 2006 and 2008. Since the beginning of the century there are also multiple programs by producers, retailers and non-governmental organizations to promote the increased use of CFLs and other energy efficient lighting which will not be discussed in their entirety here as the paper's focus is on governmental phase out policies. However, a number of these initiatives will be brought into the analysis of the diffusion of governmental phase out policies later in the paper.

Until recently the only economies with any kind of regulation specifically regarding incandescent light bulbs were the Republic of Korea and State of California in the United States. These regulations were intended to influence efficiency and only served to exclude the least efficient varieties of incandescent bulbs (Waide 2007b). However, beginning in 2006, actual policies to phase out inefficient incandescent light bulbs began to emerge. One of the first widespread policy phase outs occurred in Cuba in 2005/2006. These policies were aimed at phasing out the sale of incandescent bulbs and creating an active program to have households substitute existing bulbs with CFLs. Cuba became the first country to achieve a phase-out of incandescent lighting in 2007 when this process was understood to be complete (Waide 2007b; Sullivan, 2007). However, Cuba's reasons for the shift were driven by concerns about the overburdened national energy grid, which has caused to black outs in the island nation (Weissert 2007). We see evidence that the energy savings potential of this policy choice has lead to some diffusion, particularly within the region, where Venezuela has been involved in similar measures, as well as another 10 Caribbean countries (Waide 2007b, 5).[2]

This process appears coincide with Weyland's (2005) assertion that diffusion first occurs regionally before spreading out internationally. Yet the spread of these policies is more complicated then a simple extension from regional to international. When this policy diffused beyond its regional focus an important shift also took place in how this policy option was framed. Looking at the global spread of this policy overall, it is clear that the environmental benefits of a shift to more efficient lighting have become the primary frame for this policy and

[2] Some of these developments are also linked with incandescent bulb replacement initiatives. Cuba has created multiple programs to provide CFLs to Jamaica, Guyana, Antigua and Barbuda, Belize, St Vincent and the Grenadines, St Kitts and Nevis, Granada, Haiti, Surinam and St Lucia. At the end of 2007, more than 4 million light bulbs replaced in these states. ("Four million energy saving light bulbs installed in the Caribbean", Paulwell 2007; Government of Cuba, 2008) Cuba has also offered to provide new bulbs at cost price to members of the Organization of Eastern Caribbean States (OECS) in order to sustain the energy saving initiative (Organization of Eastern Caribbean States 2007).

have created an important tipping point for the global diffusion. It is also interesting that the role of Cuba is ignored or minimized in many international discussions of this policy, with Australia or California generally being described as policy leaders. This division implies that distinct diffusion processes are at work. Nonetheless, as some states still are partially driven by the goal of addressing concerns about their energy usage and efficiency in addition to environmental goals, any attempt to completely separate these two streams into different processes of diffusion is problematic.[3] However, this paper will focus on those policies to phase out inefficient incandescent light bulbs that have been framed by states as being primarily implemented due to environmental concerns.

The increasing importance of environmental norms in the framing of this policy choice is clearly seen if we shift to look at developments around a phase out of inefficient incandescent light bulbs in the Global North. In early 2007, phase out policies began to appear in OECD states, at the national and sub-state level. The first was on January 30, 2007 when California State Assemblyman Lloyd Levine proposed a ban on the sale of general service incandescent light bulbs in California by 2012. Entertainingly named the "How Many Legislators Does It Take to Change a Light Bulb Act", this bill sought to create energy efficiency standards for light bulbs with clear references to the environmental benefits of such a shift (Plan to Ban Standard Light Bulbs 2007; Levine 2007). California eventually passed a bill (the Lighting Efficiency & Toxics Reduction Act) to phase out incandescent bulbs by 2018 on October 12, 2007 (AB 1109 [Huffman]).

The first country in the Global North to create a policy to phase out inefficient incandescent bulbs was Australia in February of 2007. Their policy calls for a phase out by 2011 through the adoption of Minimum Energy Performance Standards (MEPS) for lighting products (Australian Government 2008). The next major state to introduce a phase out of these light bulbs was Canada on April 25, 2007. However, the federal initiative was not the first such policy in Canada as the government of Ontario announced a provincial phase out to be complete by 2012, one week prior on April 18th, 2007 (Government of Ontario 2007).[4]

This policy innovation has since spread around the world. While California was at the forefront in addressing policies to phase out inefficient incandescent light bulbs, there have been a number of important developments since then within the United States. At the sub-state level, bills addressing this issue have been introduced in at least ten additional states. (Waide 2007b).[5] One of key advance was when the federal government in the United States introduced plans to phase out incandescent light bulbs late last year. In early in 2007 bills were introduced in the House and the Senate, in March and June respectively, and have passed both houses (Waide 2007b, 7 and 9). Moreover, the energy bill signed by President Bush on December 19, 2007

[3] News reports from Africa News in late 2007 highlight efforts of state utilities in South Africa and Namibia to replace incandescent bulbs with CFLs to reduce pressure on national energy grids. (South Africa: Eskom Distributes Energy-Saving Light Bulbs; Nampower to Issue Free Light Bulbs)

[4] In addition to the Ontario policy there were announcements by territory of Nunavut that announced that it would introduce legislation when its legislature was reconvened in May (Nunavut Targets Incandescent Bulbs 2007).

[5] These include Rhode Island (SB 806), Nevada (AB 178), New York (#A07944 and AB 6190) and North Carolina (DRH30218-RT-5), Minnesota (SB 1442) [proposed a tax on the sale or transfer of incandescent lamps by a wholesaler]. In addition, on a smaller level, Connecticut (HB 6550); New Jersey (A 3983), South Carolina (SB 97), Illinois (HB 1460), Hawaii (SCR 53 and SR 28) and Arkansas (HB 2551) all introduced bills that require all state buildings to switch to CFLs over the next three years (Waide 2007b, 8).

contained a passage that calls for an incandescent light bulb phase out to begin in 2012 and be completed in 2014.[6]

Other instances of the diffusion of decisions to phase out the use of inefficient incandescent bulbs can be seen around the world. New Zealand's government has confirmed not only its support but also its intention to harmonize its lighting energy efficiency requirements with those in Australia (Waide 2007b, 6). In February 2008, the Philippines also announced its plans to phase out incandescent bulbs by January 2010 taking the lead in Asia (Philippines to Ban Incandescent Bulbs 2007). In her call for a phase out on inefficient incandescent bulbs, President Gloria Macapagal Arroyo acknowledged similar policies introduced in Canada and Australia (Asian Development Bank 2008). In both Thailand and Ghana, governments have recently announced policies for incandescent bulb phase outs (Waide 2007b). The Swiss government included a policy proposal to phase out inefficient incandescent bulbs as part of its *Energy Efficiency Action Plan* in August of 2007, which was in consultation in late 2007 (Waide 2007b). In addition, Mexico, Argentina and Tunisia are in the process of phasing out inefficient incandescent bulbs (Waide 2007a). China, which manufactures 70 percent of the world's light bulbs, has also agreed to phase out incandescent bulbs in favour of more energy efficient ones (Waide 2007b; Zabarenko 2007).

Finally, we can see multiple initiatives emerge in Europe following the Australian adoption in February 2007. However, the European cases are more complex because individual member states do not have the ability to set performance requirements that are not EU-harmonized due to competition laws in the European Single Market. Therefore, states in the European Union are significantly more limited in their ability to adopt policies which phase out bulbs even through energy efficiency standards. This has not stopped some states from attempting to address these policies. In March 2007 the British government announced plans to complete a phase out inefficient incandescent bulbs by 2011 and between March and May of that year similar announcements were made in Ireland, Portugal, Belgium and Netherlands (Waide 2007b, 7). In the case of the United Kingdom the decision has since been made to create a voluntary program for retailers to stop replacing stock of incandescent bulbs of different types at various points between January 2008 and December 2011 (DEFRA 2007). In creating new policies phase out of incandescent light bulbs, the EU may also have to deal with its current anti-dumping tariffs against CFLs bulbs imported from China.

Moreover, in the last year and a half there has been movement to create harmonized policies that would serve to phase out incandescent bulbs at the level of the European Union. Pressure to address this issue began to mount in early 2007. For example, in February 2007 there was a joint workshop held between the European Commission and IEA on CFL quality and incandescent phase out strategies. Following this event, in late March of that year, the European Commission and member governments were urged to "quickly introduce new energy efficiency standards for lighting and to introduce market surveillance measures to prevent existing product quality standards from being flouted by importers" by a cross-party group formed from members of European Parliament (Waide 2007b, 7). Since this time, the EU Council of Ministers has instructed the Commission to introduce proposals in this area before 2009 (Waide 2007b, 9). The work on lighting measures is expected under the Framework Directive for the Eco-design of

[6] It is worth noting that the proposed "Light Bulb Freedom of Choice Act" would repeal this phase-out unless a lack of health risks, along with real savings in energy costs and carbon dioxide emissions could be proven (Frommer 2008).

Energy Using Products (the EUP Directive) and will set specific standards on street, office/industry and domestic lighting products (DEFRA 2007).[7] Therefore, although the European Union has yet to adopt incandescent phase out policies, it is still currently working in this area and debating the same issues as many of the states discussed above.

Therefore, it is clear that policies to phase out the use of inefficient incandescent light bulbs have spread throughout all major regions of the globe in a very short period of time.[8] Yet not all environmental policies achieve this level or speed of diffusion. As such, the following section will explain the interplay of a number of factors that have allowed this policy innovation to spread creating increasing global convergence.

Explaining the Diffusion of a Phase out of Inefficient Light Bulbs

As explained above, the diffusion of a particular policy innovation can be attributed to three groups of factors that affect the extent to which a policy spreads: policy characteristics, the dynamics of the international system, and domestic factors. For a policy to diffuse successfully across a wide range of states, all three factors must favourably lend themselves towards diffusion. However, the characteristics of a particular policy are the most significant factor for diffusion as they determine the extent to which a policy is favourable in both the domestic and international contexts. Thus, in the case of a phase out of inefficient incandescent light bulbs the normative characteristics of the policy were the pivotal element for the policy's diffusion.

Policy Characteristics

The decision to phase out inefficient incandescent light bulbs has been embraced by an increasing number of states as a way to combat climate change and reduce CO_2 emissions. We argue that this policy option has been adopted by states as a way to combat global warming over other policy options, such as a carbon tax, because it fits with the existing norms surrounding liberal environmental protection. A norm is defined as "a standard of appropriate behaviour for actors with a given identity" (Finnemore and Sikkink 1998, 891). Because efforts to promote a new norm or policy take place within the standards of appropriateness defined by prior norms, new norms or policies will be most appealing to policy-makers when they complement existing norms. Policies that conflict with existing norms are less likely to diffuse rapidly (Busch, Jorgens and Tews 2005, 164; Finnemore and Sikkink 1998, 897).

Bernstein (2001) argues that liberal environmentalism has emerged as the dominant norm in environmental governance. He states that liberal environmentalism "has become the legitimate way to address global environmental problems, and a mainstay of how international organizations and states understand their role in promoting action at both the international and domestic levels" (Bernstein 2001, 71). Liberal environmentalism eschews the traditional

[7] According to DEFRA there are two different proposed timelines for lighting efficiency standards. Those dealing with street and office lighting are expected to be agreed to before the beginning of 2009. The second area, domestic lighting, is following behind this. In this area, work began at the beginning of June2008 and a Commission proposal is expected by the end of 2009 (DEFRA 2007).

[8] If one looks beyond phase-out policies and also includes programs that encourage the use of CFLs, this list could be expanded to include Egypt, India, Indonesia, South Africa, Brazil, Mexico,Vietnam, Namibia and Russia (Waide 2007b, 10; Nampower to Issue Free Light Bulbs 2007; Herro 2007).

"command and control" policies advocated by environmentalists during the 1960s and 1970s, in favour of the use of market-friendly mechanisms as the preferred approach to environmental management. Within this liberal environmental paradigm, economic growth and environmental protection are seen as compatible. Free market-oriented policies such as trade liberalization are viewed as encouraging environmental protection and are seen as the most promising mechanisms with which to promote environmental protection globally (Bernstein 2001). Three characteristics of the phase out of inefficient incandescent light bulbs make this policy compatible with the norm of liberal environmentalism: its market friendly nature, its focus on energy efficiency as opposed to energy conservation, and its low cost and ease of implementation for governments.

The decision by governments to phase out inefficient incandescent light bulbs was driven in large part by the market friendly nature of the policy. A 'ban' or 'phase out' of inefficient bulbs may traditionally have been conceptualized as a 'command and control' type policy. In this case, however, this policy option can be seen as market-friendly because major retailers and producers of light bulbs have generally been strongly supportive of a phase out. One reason for this strong support is the growth of the market for CFLs. In 2007, Philips, the world's leading lighting supplier, reported that for the first time in history the worldwide sales of incandescent bulbs had declined, while sales of CFLs have continued to grow (Natural Resources Canada 2007a). In North America this trend is readily apparent. In the United States, CFL sales have increased at a rate of 50% per year since 2000 (Verhaar 2007). Home Depot, the largest retailer of CFLs in Canada, has reported that its sales of CFLs grew more than 350% between 2004 and 2006 (Lights to Go Out on Inefficient Bulbs by 2012, 2007).

In Europe we can see similar developments encouraging the use of CFLs and reducing the production of incandescent bulbs. Within the EU, major light bulb producers such as Philips, Sylvania, and General Electric have opposed the anti-dumping duties charged on imports of CFLs from China (EU Keeps Duties on Low-Energy Bulbs 2007, 19; Philips 2007). Moreover, the European Lamp Companies Federation (ELC) announced in June 2007 that it would voluntarily phase out the sale of inefficient bulbs in the EU by 2015 (European Lamp Companies Federation 2008; Waide 2007a, 8).[9] The Secretary General of the ELC stated that "We fully support the implementation of energy efficient lighting in Europe and our industry has been actively working to this end" (European Lamp Companies Federation 2008).

The industry support reducing the availability of incandescent bulbs can be seen worldwide. Philips has been a strong supporter of the phase out of inefficient incandescent bulbs and in December 2006 announced that it would welcome the phase out of incandescent bulbs over a ten year period. Following the announcement by Philips other major bulb producers have echoed their support for a phase out. For example, in 2007 General Electric announced that it would increase the production of energy efficient bulbs and work towards phasing out incandescent bulbs (Brown 2007; Collins 2008; Waide 2007a, 6).

Major retailers of light bulbs have also been strong proponents of CFLs, often using the promotion of CFLs as part of their corporate environmental programs. IKEA has been a leader in the promotion of CFLs. The company has committed to only sell bulbs that are low in mercury and offers a free in-store recycling program (IKEA 2007). Home Depot has also actively promoted CFLs within its stores. In April 2007, Home Depot Canada announced that it would stop selling inefficient incandescent bulbs in its stores by 2011, one year ahead of the

[9] The membership of the ELC includes Philips, Havells Sylvania, General Electric, and Osram and is responsible for 95% of total European light bulb production (European Lamp Companies Federation 2008).

Canadian government's mandated phase out. The company has also launched a free in-store recycling program for CFLs (Home Depot 2007a; 2007b). Wal-Mart has also actively promoted CFLs to customers, making their promotion an important part of the company's environmental program (Barbaro 2007, 1). Finally, light bulb producers and retailers have played a key role in the UK by committing to a voluntary phase out of the bulbs by 2011 in response to the EU's slow progress towards phasing out inefficient incandescent bulbs (DEFRA 2007).[10]

Thus, market actors have played a key role in encouraging a phase out of inefficient incandescent light bulbs, and have supported and facilitated this policy option by promoting CFLs to consumers. Widespread business support for a phase out suggests a need to re-evaluate how we define policies as market-friendly. While much of the literature on environmental policy conceptualizes 'bans' as command and control policies, in this case wide-spread industry support clearly characterizes a phase out of inefficient light bulbs as market friendly.

The phase out of inefficient incandescent bulbs also appeals to consumers and policy-makers because of its focus on energy efficiency as opposed to energy conservation. Along with a shift away from a 'command and control' approach to environmental policy-making, since the 1980s governments have also shifted from a focus on energy conservation to a focus on energy efficiency. Unlike energy conservation which typically requires significant behavioural change on the part of consumers and industry, energy efficiency is seen as a way of addressing climate change without constraining economic growth or demanding considerable behavioural change (Eden 1996, 6-7; Strauss 2007, 13). Market-friendly policies that promote energy efficiency are especially appealing to free-market oriented governments such as those in Australia, Canada, and the United States, when the decision to phase out inefficient incandescent light bulbs was made.

A further characteristic of the policy to phase out inefficient incandescent light bulbs that made it desirable to governments was the low-cost of the policy and its ease of implementation. As this policy has widespread support from major industry players, the ban will require minimal enforcement on the part of government. The ban is also a very low cost approach to reducing emissions compared to other policy options advocated by environmentalists, and requires minimal sacrifices on the part of the consumer and business.

Thus, the policy characteristics of a ban on inefficient incandescent light bulbs made it an appealing policy option as it was compatible with the existing norms of liberal environmentalism. The policy was market-friendly and had the support of major lighting producers and retailers, as well as being easy to implement and of a relatively low cost. Moreover, the focus on energy efficiency as opposed to energy conservation made the policy appealing to both governments and consumers. It was the characteristics of the phase out of inefficient incandescent bulbs that allowed this policy to be championed by regulatory actors at both the international and domestic levels and to diffuse relatively quickly amongst a growing number of diverse states.

International Factors

The diffusion of a phase out of incandescent light bulbs has received increased impetus from its promotion by actors at the international level. Norm or policy entrepreneurs play an integral role in creating acceptance and support for specific policy options. As Keck and Sikkink

[10] The voluntary phase out in the UK involves major retailers such as Asda, B&Q, Homebase, IKEA, John Lewis, Marks and Spencer, Morrison's Sainsbury's, Tesco and Waitrose (Taylor 2007).

state, "Norms do not appear out of thin air; they are actively built by agents having strong notions about appropriate or desirable behaviour in their community" (1998, 896). All norm promoters at the international level need some kind of organizational platform through which to promote their ideas. Policy or norm entrepreneurs will often work from within international organizations to promote new norms through the provision of expertise to policy-makers. As Busch, Jorgens, and Tews state, "promotion at the international level has proven to be a decisive driver of policy diffusion. Often, international actors crucially accelerated diffusion processes" (2005, 164).

The International Energy Agency (IEA) has played a key role in the diffusion of a phase out of incandescent light bulbs by acting as a source of expertise and helping to coordinate domestic policy-makers. The work of the IEA regarding a phase out of incandescent bulbs has been closely tied to the policy objectives of the G8 and its *Plan of Action on a Clean, Clever and Competitive Energy Future*. Although governments in the G8 have been very divided in their approach to climate change, the broad concept of energy efficiency is one area in which there is general agreement. As policies to promote energy efficiency generally do not threaten economic growth they appeal to a wide range of states and are one of the few areas in which the G8 has been able to reach a broad consensus in its approach to climate change (Elliott 2005, 15).

In June 2006, as part of its work for the G8, the IEA released a 558 page publication on lighting energy use and related energy efficiency issues entitled *Light's Labour's Lost: Policies for Energy Efficient Lighting*. The publication was widely circulated amongst light bulb manufacturers and policy-makers and provided technical information to policy-makers as well as a number of policy recommendations to reduce the use of incandescent bulbs (International Energy Agency 2006). The publication of the book was followed up by a workshop on lighting efficiency in February 2007 organized by the IEA and the European Commission and attended by policy-makers, industry officials, and environmentalists. The aim of the workshop was to contribute to the definition of best practice policy responses to incandescent lighting (International Energy Agency 2007).[11] In addition to the book and workshop, the IEA has also provided information on more energy efficient lighting to bodies such as the American Council for an Energy-Efficient Economy (ACEEE) and the US Senate (Waide 2007a; 2008). The organization's work, in conjunction with national policy-makers, has played a key role in the diffusion of the phase out of inefficient light bulbs, especially when the G8 endorsed 12 concrete energy efficiency policy recommendations from the IEA in June 2007. The IEA recommended that in the case of lighting, "Governments should move to phase-out the most inefficient incandescent bulbs as soon as commercially and economically viable" (Waide 2007a, 9).

Domestic Factors

The IEA has worked as a network for domestic policy-makers, encouraging them to phase out inefficient incandescent light bulbs. However, in addition to the work of the IEA as a provider of policy expertise, a number of domestic factors have also coalesced in favour of the diffusion of a phase out of inefficient incandescent light bulbs.

[11] This workshop (*CFL Quality and Strategies to Phase-Out Incandescent Lamps* held in Paris On February 26, 2007) is one of a number held by the IEA that have addressed energy efficiency in lighting over the last few years, including the *3rd International Conference on Energy Efficient in Domestic Appliances and Lighting* held in May 2008 in Shanghai, China (IEA website). These workshops have been attended by many key governmental and non-state actors.

The decision to phase out inefficient incandescent light bulbs has been popular with governments like Canada, Australia, and the United States due to the support it has received from both environmentalists and business interests. In general, environmental regulations will generally be most successful and widely adopted when they have support from both environmental and industry groups, while opposition from powerful interest groups can impede policy diffusion (Busch, Jorgens, and Tews 2005, 159; DeSombre 2000, 10). In the case of light bulbs, environmental groups such as Greenpeace, the World Wildlife Fund, Friends of the Earth, and Ban the Bulb have promoted the benefits of CFLs and have campaigned for a ban on inefficient incandescent bulbs. The general support of major light bulb retailers and producers for this policy has already been discussed. Looking at individual states, in 2007 a coalition of environmentalists, members of the lighting industry and energy specialists in the United States joined together to promote the phase out of incandescent bulbs at the local, state and federal levels (Brown 2007; Wald 2007). In Canada, the support of industry and environmentalists was one of the factors that motivated the government to implement the policy (Natural Resources Canada 2008). The importance of industry support is also illustrated in the EU, where Osram's opposition to imports of Chinese CFLs have effectively stalled a phase out of inefficient incandescent bulbs despite support from other producers, retailers, and environmental groups.

Along with the support of environmental groups and industry, the actions of utility companies have also played an important role in creating greater acceptance for CFLs amongst consumers. In both Canada and the United States utility companies have been promoting CFLs through the use of CFL giveaways and price reductions.[12] The actions of utility companies have been integral in paving the way for a phase out of inefficient incandescent bulbs as the initial price of CFLs and a lack of consumer awareness have been key barriers to the dissemination of the technology (Waide 2007b). The impact of utility companies, industry, and environmental groups in creating support for a phase out of inefficient incandescent bulbs was noted by the Government of Canada who stated, "Thanks to the activities of Canadian electricity utilities, retailers, and non-government organizations and others, including the government of Canada, to promote more efficient lighting choices, the market for efficient lighting alternatives such as CFLs has grown significantly in recent years" (Natural Resources Canada 2007a).

While the phase out of inefficient incandescent light bulbs has been an attractive policy choice for many governments due to endorsement it has received from both the business community and environmentalists, the primary impetus for the policy has been climate change and the Kyoto Protocol. The ban on inefficient light bulbs has been framed as a way for governments and ordinary citizens to effectively combat global warming while incurring very minimal inconvenience (see for example Australian Government 2007; Natural Resources Canada 2007b). Both the United States and Australia have refused to ratify the Kyoto Protocol, while the Canadian Government has been critical of Kyoto and has indicated it will likely not honour its commitment to the agreement. However, despite their resistance, governments in these countries and elsewhere have been under increasing pressure from citizens and

[12] For example, BC Hydro has provided coupons to consumers for free CFLs with their electric bills, while several Ontario utility companies have provided coupons to their customers to reduce the price of CFLs. In the United States, utility companies in a number of states including Idaho, Georgia, North Carolina, Virginia, and Nevada have either given away CFLs or provided discounts on CFLs to consumers (Dominion Virginia Power, The Home Depot Sell 1,000,000th Energy-Saving Light Bulb 2008; Georgia Power's Change a Light Program Wins National Award for Second Consecutive Year 2008; N. Idaho Utility Sees Energy Conservation 2008; PowerStream's Conservation Programs Having Substantial Impact 2008; Robertson 2007, 32).

environmentalists to implement policies to combat climate change. Both the Australian and Canadian governments have been under pressure to improve their green credentials, with climate change seen as a potential 'big issue' for voters (Frew and Besser 2007, 1). A phase out of inefficient incandescent light bulbs is particularly appealing to these governments as the policy is a low cost and highly visible way for a government to illustrate its commitment to reducing its greenhouse gas emissions.

These governments also see a first-mover advantage in being among the first to phase out inefficient incandescent bulbs. Being among the first to implement this policy has allowed the Canadian, Australian, and U.S. governments to be leaders on an issue related to climate change, where they have faced strong criticism from environmentalists and other states. As stated by the Canadian government, "Canada's move to ban inefficient lights will also allow our country to assume a leadership role internationally, and to influence the development of global standards for lighting energy efficiency" (Natural Resources Canada 2007a).

An additional domestic factor that has encouraged the diffusion of this policy in some states has been the potential energy reduction offered by CFLs in states whose power systems are currently running at or near capacity. This is been a particularly strong motivation for policy-makers in the developing world, where utility companies are often struggling to meet demands for power. Cuba, Venezuela, Namibia, and South Africa have all promoted CFLs or phased out inefficient incandescent bulbs for this reason. Energy use reduction has also played an important role in the decision by governments such as Canada to phase-out incandescent bulbs. However, while energy use may be seen as a 'rational' reason to encourage the use of CFLs, it has not been the primary factor in encouraging the diffusion of this policy option. While Cuba had largely phased-out inefficient incandescent bulbs by 2007, with countries such as Venezuela following suit, the policy did not begin to diffuse widely until it gained the widespread support of a variety of stakeholders and was strongly linked to the issue of climate change. Thus, the normative characteristics of a phase out of inefficient incandescent lights bulbs have provided the primary impetus for the diffusion of this policy.

Implications of the Increased Use of CFLs due to Phase Outs

There are two additional implications of the diffusion of a phase out of inefficient incandescent light bulbs which merit attention. First, the paper will look briefly at emerging efforts to harmonize the standards of CFL and LED bulbs. Following this, it will address the question of disposal and recycling due to the mercury contained within CFLs. This matter is especially pertinent given the increased use of CFLs, as they are currently the primary replacements for incandescent bulbs.

Looking at the first implication, the move to phase out incandescent bulbs highlights a need for CFL standards and quality harmonization. In the last few years we have seen a number of initiatives focused on creating and harmonizing these standards. In particular there have been discussions about harmonized labelling and attempts to harmonize the parameters and test methods for CFL bulbs. As of 2007, there were still multiple different standards for CFLs in use around the world **(**Jeffcott 2007). Given that the market for CFLs is global in nature these disparities can prove problematic.

There are some indications of international efforts to address these issues and create global convergence and harmonization. A key international initiative working to address this is

the International CFL Harmonisation Initiative (CFLI). This program was developed by the Australian Greenhouse Office and encompasses members from around the world, including China, Europe, and North America. Currently there are more than 130 representatives spread across government, NGO and private sectors, active in the program in various capacities (International CFL Harmonization Initiative (CFLI) 2008).

Turning to the second implication, the increasing use of CFLs also creates concerns about their proper disposal due to the small amount of mercury contained within each CFL. This means that proper disposal and recycling options need to be available as CFL use increases. However, it is important to realize that the amount of mercury in question is quite small, with a general estimate that each bulb contains less than the amount in a single watch battery. Moreover, it has been pointed out that the overall amount of mercury in these bulbs is significantly less than that produced by the coal based thermal power stations which provide electricity for lighting. Switching to CFL bulbs reduces the amount of energy required thus lowering the emissions of these plants (US Environmental Protection Agency 2008).[13] This overall mercury reduction has lead many environmental groups, such as Greenpeace, to take a holistic view of the switch to CFLs. They argue that developments to ensure that safe disposal and recycling processes are available are important. However, in the context of climate change and the need for quick action to address it, environmental groups such as Greenpeace argue for "simultaneously setting progressively higher standards for lighting efficiency over a well defined timeline and also putting in place systems for implementing take back and safe disposal practices by the manufacturers" (Greenpeace Statement on Climate Change, CFLs and Mercury, 2007).

As in the case of phase outs, a number of states are developing programs to address issues related to the proper disposal of CFLs. One challenge involved in the recycling and disposal of CFLs is the potentially significant cost. According to a report by the National Electrical Manufacturers Associations (NEMA), the US Environmental Agency estimates the cost to properly recycle CFLs at 50 cents to $2.00 per bulb (NEMA 2007, 2). Despite this, states are beginning to address the manner in which CFLs are disposed. The United States' current recovery rate for used CFLs is approximately 24 percent and it aims to increase this to 80 percent by 2009. The European Union has recovery target of 80 percent under its Waste Electrical and Electronic Equipment (WEEE) directive. At the end of 2007, Australia was consulting with stakeholders, benchmarking quantities and reviewing management options with regards to this issue. In Canada, the government has shown concern about mercury and went into consultation (and information sessions) with stakeholders to address Environment Canada's mercury risk management strategy and proper disposal requirements (Sinclair 2007).

Some retailers and manufacturers have also played a leading role in ensuring the safe disposal of CFLs. For example, retailers like IKEA and Home Depot offer free in-store recycling bins for consumers. In late 2007 Osram Sylvania developed a mail-based recycling program for US customers, supplementing its online recycling program that was started in November 2006 (Osram Syvania 2007). In addition to this, the National Association of Electrical Manufacturers (NEMA) has also developed a website (www.lamprecycle.org) to provide information on proper disposal of bulbs that contain mercury and to help people find recycling options in Canada and the United States (Lamprecycle.org 2008). However, despite efforts by regulators and the private sector some concern remains that the growth in CFLs

[13] See Table 1

brought on by phase outs has not been matched by developments to inform individual consumers and allow for proper disposal.

Conclusions

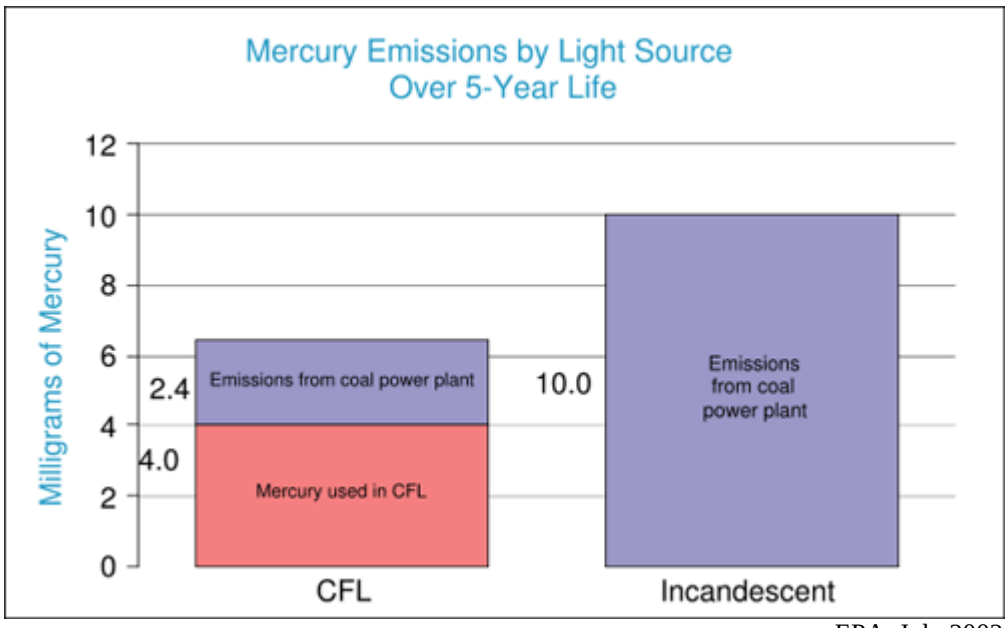
In the last few years multiple governments throughout the world have made the decision to phase out the use of inefficient incandescent light bulbs. In addition, governments, environmentalists, utility companies, and retailers and producers have been successfully promoting CFLs to consumers. As a result of these actions it appears that a phase out of inefficient incandescent light bulbs is taking place throughout the world despite the lack of an international treaty, other explicit coordination, or coercion between states. As Busch, Jorgens and Tews state, "In the absence of a centralized regulatory regime with highly visible and explicitly stated aims, international policy diffusion may thus result in a 'regulatory revolution by surprise'" (2005, 149).

This paper has argued that three groups of factors are important in determining the extent to which a policy spreads: the normative elements of a policy or its policy characteristics, the dynamics of the international system, and domestic factors. While all three characteristics are important in the spread of a particular policy innovation, most integral are policy characteristics or normative elements. Normative characteristics are a factor that has at times been neglected in studies of policy diffusion. In the case of a phase out of inefficient incandescent bulbs, this policy innovation spread relatively rapidly due to its compatibility with the norms of liberal environmentalism. Issues related to the safe disposal and recycling of CFLs are not as compatible with the norms of liberal environmentalism, and as such regulators have been slower to deal with this issue. Thus, those policy innovations which support existing norms are more likely to successfully diffuse.

The normative elements of a phase-out of inefficient incandescent light bulbs have allowed it to gain the support of a wide range of actors at both the international and domestic levels, in both the public private sectors. The support of most major producers and retailers of light bulbs along with the support of most environmentalists has meant that this policy innovation has faced minimal opposition. Research to date has highlighted the role of the private sector in facilitating the spread of this policy option and suggests the important role that private sector support can play in the spread of a particular policy choice and in facilitating the policy choices made by states. Yet in order to draw out the exact specifics of this relationship between the private sector and governments in this case further research will be needed.

Whether the move to ban inefficient incandescent bulbs achieves the desired environmental ends is not something that we can predict. However, even at this point in the development of this policy a couple of important findings can be made. First, it is apparent that creating an environmental policy that is adopted by a variety of different states around the globe does not necessarily require international treaties and negotiation. Second, it is not simply government action and coordination but the combination of multiple actors (governments, markets and environmental organizations) united around norms of liberal environmentalism that has been central to the policy's diffusion.

Appendix
Table 1



EPA, July 2002

Works Cited

AB 1109 (Huffman) Lighting Efficiency & Toxics Reduction Act. 2007. Californians against Waste. Accessed May 14, 2008, http://www.cawrecycles.org/issues/current_legislation/ab1109_07.

Australian Government: Department of the Environment, Water, Heritage and the Arts. 2008. "Phase-Out of Inefficient Light Bulbs." Accessed: April 10, 2008, http://www.environment.gov.au/settlements/energyefficiency/lighting.html.

Barbaro, Michael. 2007. "Wal-Mart Puts Some Muscle Behind Power-Sipping Bulbs." The New York Times (January 2): 1.

Bernstein, Steven. 2001. The Compromise of Liberal Environmentalism. New York: Columbia University Press.

Brown, Lester R. 2007. "Canada Joins Movement to Ban Inefficient Bulbs." IPS: Inter Press Service (May 9).

Busch, Per-Olof and Helge Jorgens. 2005. "The International Sources of Policy Convergence: Explaining the Spread of Environmental Policy Innovations." Journal of European Public Policy 12 (October): 860-884.

Busch, Per Olof, Helge Jorgens and Kerstin Tews. 2005. "The Global Diffusion of Regulatory Instruments: The Making of a New International Environmental Regime." The Annals of the American Academy of Political and Social Science 598 (March): 146-167.

Collins, Dave. 2008. "Group Says GE Supplier in China Subjects Workers to Toxins." The Associated Press (March 26).

DEFRA: Department for Environment, Food and Rural Affairs. 2007, September 27. "Energy Guzzling Lightbulbs Phase Out to Start Next Year." Accessed May 13, 2007, http://www.defra.gov.uk/news/2007/070927a.htm.

DeSombre, Elizabeth R. 2000. Domestic Sources of International Environmental Policy: Industry, Environmentalists and U.S. Power. Cambridge, Massachusetts: The MIT Press.

Dominion Virginia Power, The Home Depot Sell 1,000,000th Energy-Saving Light Bulb. 2008. PR Newswire (March 13).

Eden, Sally. 1996. Environmental Issues and Business: Implications of a Changing Agenda. New York: John Wiley and Sons.

Elkins, Zachary and Beth Simmons. 2005. "On Waves, Clusters, and Diffusion: A Conceptual Framework." The Annals of the American Academy of Political and Social Science 598 (March): 33-51.

Elliott, Larry. 2005. "G8 Summit: Bush Concedes Ground on Climate Change." The Guardian (July 8): 15.

EU Keeps Duties on Low-Energy Bulbs. 2007. International Herald Tribune (October 16): 19.

EU to Switch of Incandescent Bulbs. 2007, March 9. CBCnews.ca. Accessed May 14, 2008, http://www.cbc.ca/technology/story/2007/03/09/eu-bulbs.html.

European Lamp Companies Federation. 2008. "Lamp Manufacturers Encourage the Switch to Energy Efficient Lighting in Europe." (April 6). Accessed April 25, 2008, http://www.elcfed.org/documents/080406_ELC%20press%20release%20on%20switch%20to%20energy%20efficient%20lighting.pdf.

Finnemore, Martha and Kathryn Sikkink. 1998. "International Norm Dynamics and Political Change." International Organization 52 (Autumn): 887-917.

Four Million Energy Saving Light Bulbs Installed in the Caribbean. 2007, August 11. III Summit PetroCaribe: News Release. Accessed May 14, 2007, http://iiicumbre petrocaribe.menpet.gob.ve/index.php?tpl=interface.en/design/salaprensa/readmenu.tpl.html&newsid_obj_id=330&newsid_temas=1.

Frew, Wendy and Linton Besser. 2007. "Light Bulbs to Slash Emissions." Sydney Morning Herald (February 20): 1.

Frommer, Frederic J. 2008. "Bachmann Bill Would Reverse Phase-In of Energy-Efficient Bulbs." The Associated Press State and Local Wire (March 26).

Georgia Power's Change a Light Program Wins National Award for Second Consecutive Year. 2008. PR Newswire (March 12).

Government of Cuba. 2008, March 3. "Cooperation between Suriname and Cuba increases." News Release on CubaMinRex:Ministry of Foreign Affairs of Cuba. Accessed May 14, 2008, http://america.cubaminrex.cu/English/currentissues/2008/Marzo/Cooperation.html.

Government of Ontario. 2007, April 18. "McGuinty Government to Ban Inefficient Light Bulbs by 2012." Ministry of Energy News Release. Accessed May 14, 2008, http://www.energy.gov.on.ca/index.cfm?fuseaction=english.news&body=yes&news_id=148.

Greenpeace Statement on Climate Change, CFLs and Mercury. 2007, May 7. Greenpeace. Accessed May 14, 2008, http://www.greenpeace.org/india/press/releases/greenpeace-statement-on-climat.

Herro, Alana. 2007. "World Governments Adopting Bright Idea." World Watch: Eye on Earth (March 5). Accessed May 14, 2008, http://www.worldwatch.org/node/4941.

Home Depot Canada. 2007a, April 25. "Canada's Largest Light Bulb Retailer Applauds National Phase Out." Accessed May 13, 2008, http://www.newswire.ca/en/releases/archive/April2007/25/c8978.html.

Home Depot Canada. 2007b, November 27. "If I Had 1.5 Million Light Bulbs…" Accessed May 13, 2008 http://www.homedepot.ca/wcsstore/HomeDepotCanada/pdf/English/cfl_release.pdf.

IKEA. 2007, April 10. "It all Started with Edison! IKEA Endorses Energy-Saving CFL Light Bulbs and Offers 'Free Take Back' Program through Recycle Bins in all IKEA Stores." Accessed May 13, 2008, http://www.csrwire.com/News/8104.html.

International Energy Agency. 2006. Light's Labour's Lost: Policies for Energy Efficient Lighting.

International Energy Agency. 2007, February 26. CFL Quality and Strategies to Phase-out Incandescent Lamps. Accessed April 25, 2008, http://www.iea.org/textbase/work/workshopdetail.asp?WS_ID=287.

International CFL Harmonization Initiative (CFLI). 2008. Accessed May 14, 2008, http://www.apec-esis.org/www/cfl/.

Jeffcott, Stuart. 2007. International CFL Harmonization Initiative: A Community of Practice. Presented at The Asia-Pacific Partnership on Clean Development and Climate Buildings and Appliance Task Force – Lighting, Seoul, Korea. Accessed May 14, 2008, http://www.asiapacificpartnership.org/BATF/BATF%20Projects%20Workshops/Lighting%20Workshop/Harmonization%20Initiative-jeffcott.pdf.

Jorgens, Helge. 2004. Governance by Diffusion: Implementing Global Norms Through Cross-National Imitation and Learning. In Governance for Sustainable Development: The Challenge of Adapting Form to Function, edited by William M. Lafferty. Cheltenham, England: Edward Elgar.

Keck, Margaret E. and Kathryn Sikkink. 1998. Activists Beyond Borders: Advocacy Networks in International Politics. Ithaca: Cornell University Press.

Kern, Kristine, Ingrid Kissing-Nat, Ute Landmann, Corine Mauch in collaboration with Tina Loffelsend. 2001. "Policy Convergence and Policy Diffusion by Governmental and Non-governmental Institutions – An International Comparison of Eco-labeling Systems" Wissnschaftszentrum Berlin Fur Sozialforschung Discussion Paper (FS II 01-305). Berlin: Social Science Research Center of Berlin.

Lamprecycle.org. 2008. Accessed: May 14, 2008. http://www.lamprecycle.org/

Levine, Lloyd E. 2007. Incandescent Phase Out: Frequently Asked Questions. Accessed May 14, 2008, http://democrats.assembly.ca.gov/MEMBERS/a40/LightBulb/LightBulb-FAQ.pdf.

Lights to go out on Inefficient Bulbs by 2012. 2007, April 25. CBC News. Accessed March 5, 2008, http://www.cbc.ca/canada/story/2007/04/25/lunn-bulbs.html.

Nampower to Issue Free Light Bulbs. 2007. Africa News (October 30).

Natural Resources Canada. 2007a, April 25. "Backgrounder: Questions and Answers." Accessed April 20, 2008, http://www.nrcanrncan.gc.ca/media/newcom/2007/200735b-eng.php.

Natural Resources Canada. 2007b. "Backgrounder: Ban on Inefficient Light Bulbs." Accessed April 25, 2008, http://www.iea.org/textbase/work/2007/cfl/canada_background.pdf.

N. Idaho Utility Sees Energy Conservation. 2008. The Associated Press State and Local Wire (February 19).

Nunavut Targets Incandescent Bulbs. 2007, March 22. CBC News. Accessed March 5, 2008, http://www.cbc.ca/canada/story/2007/03/22/nu-lightbulb.html.

Organization of Eastern Caribbean States. 2007, May 24-25. "Communique." 45th Meeting of the OECS Authority. Accessed May 14, 2008, http://www.caricom.org/jsp/communications/communique%20oecs.pdf.

Osram Sylvania. 2007, November 27. "Sylvania Continues Commitment to Lamp Recycling Program with the Inclusion of the United States Postal Service**:** New Mail-in Process Makes CFL Recycling Easier for Residential Customers", Accessed: May 14, 2008 http://www.sylvania.com/AboutUs/Pressxpress/Pressnews/CommitmentLampRecycling.htm

Paulwell, Phillip. 2007. "Empowering our People through Industry, Enterprise, Technology, Energy and Commerce." Sectoral Presentation by the Minister of Industry, Technology, Energy and Commerce (June 7): Jamaica Houses of Parliament. Accessed May 14, 2008, http:// 72.14.205.104/search?q=cache:lxWSO-QOzqAJ:www.mct.gov.jm/Paulwell%27s%2520Budget%2520Speech%2520June%25206%25202007.pdf+PetroCaribe+initiative+light+bulb&hl=en&ct=clnk&cd=27.

Philippines to Ban Incandescent Bulbs. 2008, February 5. ABC News. Accessed May 14, 2008, http://abcnews.go.com/International/wireStory?id=4243147.

Philips. 2007a. "Elimination of Duties on Chinese CFLs will Increase European Competitiveness and Benefit Consumers and the Environment." Accessed May 13, 2005, http://www.lighting.philips.com/gl_en/news/press/lighting_company_news/archive_2007/press_pr_cfl_duties.php?main=global&parent=4390&id=gl_en_news&lang=en.

Plan to Ban Standard Light Bulbs. 2007. BBC News—Business. Accessed March 5, 2008, http://news.bbc.co.uk/go/pr/fr/-/2/hi/business/6316635.stm.

PowerStream's Conservation Programs Having Substantial Impact. 2008. Canadian Corporate Newswire (April 1).

Recycling Household CFLs. 2007, September. NEMA: National Electrical Manufacturers Association, www.nema.org/lamprecycle/Recycling%20Household%20CFLs. %2009%2007.pdf

Robertson, Ian. 2007. "Lights Out for Old, Inefficient Bulbs." The Toronto Sun (April 19): 32.

Rogers, Everett. 2003. Diffusion of Innovations. New York: Free Press.

Sinclair, Rob. 2007. "Fluorescent Lamps, Lighting Efficiency and Recycling." A presentation by Natural Resources Canada at the Recycling Council of Alberta Conference (September 26-28).

South Africa: Eskom Distributes Energy-Saving Light Bulbs. 2007. Africa News (November 1).

Stauss, Michael J. 2007. "Focus Switches from Light to Bulb: Energy Efficiency, Instead of Conservation, is the New Mantra for Governments." The International Herald Tribune (October 31): 13.

Sullivan, Rohan. 2007. "Australia to Ban Old-Style Light Bulbs, Go Fluorescent to Reduce Greenhouse Emissions." Associated Press: Business News Section (February 20).

Taylor, Ros. 2007. "Chain Stores to End the Sale of Traditional Lightbulbs." Guardian.co.uk (September 27). Accessed March 5, 2008, http://www.guardian.co.uk/politics/2007/sep/27/labourconference.labour.

United States Environmental Protection Agency. 2008. "Mercury-Containing Light Bulb (Lamp) Basic Information." Accessed March 5, 2008, http://www.epa.gov/bulbrecycling/basic.htm.

Verhaar, Harry. 2007. "European Lamp Companies Federation: Industry Commitment to Phasing Out Inefficient Lighting Products in the Home." Presented at CFL Quality and Strategies to Phase-out Incandescent Lamps Workshop (February 26): Paris, France. Accessed April 25, 2008, http://www.iea.org/Textbase/work/2007/cfl/Verhaar.pdf.

Waide, Paul. 2007a. "Global Efforts to Phase-Out Incandescent Lamps." The IEA OPEN Energy Technology Bulletin 45 (October). Accessed April 25, 2008, http://www.iea.org/impargr/cip/pdf/Issue45Lighting.pdf.

Waide, Paul. 2007b. "Lights Labour's Lost: Policies for Energy-Efficient Lighting." Presented at CFL Quality and Strategies to Phase-out Incandescent Lamps Workshop (February 26): Paris, France. Accessed April 25, 2008, http://www.iea.org/Textbase/work/2007/cfl/Waide.pdf.

Waide, Paul. 2008. "Meeting Stretch Goals for Energy Efficiency: Market Transformation Initiatives from Around the World." Presented at the ACEEE Market Transformation Symposium. Washington, DC.

Wald, Matthew L. 2007. "Coalition's Bright Idea: Eliminate Incandescent Light Bulb." New York Times News Service (March 3). Accessed May 16, 2008, http://www.pqlighting.com/inthenews.cfm.

Weissert, Will. 2007, July 4. "UN Official: Cuba Solved Energy Crisis." San Francisco Chronicle. Accessed May 14, 2008, http://sfgate.com/cgibin/article.cgi?f=/n/a/2007/07/04/international/ i124154D18.DTL.

Weyland, Kurt. 2005. "Theories of Policy Diffusion: Lessons from Latin American Pension Reform." World Politics 57 (January): 262-295.