

TABLE OF CONTENTS

COMMENTARIES

A CLIMATE AGENDA FOR THE NEW PRESIDENT	<i>Lisa Heinzerling</i>	58
ENERGY EFFICIENCY AND FEDERALISM	<i>Ann E. Carlson</i>	63
A U.S.-CHINA PARTNERSHIP TO PROTECT OUR CLIMATE.....	<i>Thomas P. Lyon</i>	70
SUSTAINABLE WATERSHEDS	<i>Jonathan Z. Cannon</i>	74
A RENEWED ROLE FOR CONSERVATION IN ENVIRONMENTAL POLICY.....	<i>Amie Medley</i>	80
AMERICA'S NEXT MOVE: THE UNITED STATES' DOMESTIC AND INTERNATIONAL POLICIES ON GLOBAL WARMING AFTER THE KYOTO PROTOCOL	<i>Joshua Van der Ploeg</i>	85

A CLIMATE AGENDA FOR THE NEW PRESIDENT

*Lisa Heinzerling** †

The Bush Administration squandered eight years denying the reality of climate change and delaying action on it. Nevertheless, the president who comes into office in January will face two happy realities. First, whatever the Bush Administration has done (through obstruction or inaction) on climate change can easily be undone due to its legal and scientific flimsiness. And second, statutes now on the books provide plenty of legal authority for swift action on the most important environmental issue of our time.

We will soon say goodbye to the administration with the worst environmental record in history. Its failures are many and varied. They include misguided deregulation (recall the “reforms” of the New Source Review program, which ensured that virtually no polluter in America would have to install the latest pollution control technology when it renovated its facilities), stubborn inaction (think of the administration’s position—lawless and foot-dragging—on climate change), and cynical dismissals of both law (consider the attempt to turn the word “daily” into “annual” in order to avoid stricter regulation of water pollution) and science (too many possibilities to mention here). There has been occasional progress, such as the regulation of air pollution from boats, lawn mowers, and other “nonroad” engines. But mostly we have seen either no forward movement at all, or large steps backward.

The good news is that the new president can undo these policy failures and cure these regulatory omissions. The bad news is that the Bush Administration’s assaults on law and science have nurtured a culture of cynicism and distrust within the agencies charged with protecting our health and environment, as well as in the courts and in the public at large. This culture will be much harder to dislodge than any discrete policy decision made in the last eight years.

Let’s start with the good news. A new administration can reverse any of the current administration’s policy failures, so long as the underlying statute does not command the result the agency reached during the Bush years.

The bad news, though, is that such a reversal will take time and a lot of words; as the Supreme Court held twenty-five years ago in *Motor Vehicle*

* Professor of Law, Georgetown University Law Center. The author was the lead author of Massachusetts and other petitioners’ winning briefs in *Massachusetts v. EPA*, in which the Supreme Court held that the Environmental Protection Agency has the authority to regulate greenhouse gases under the Clean Air Act.

† Suggested citation: Lisa Heinzerling, Commentary, *A Climate Agenda for the New President*, 107 MICH. L. REV. FIRST IMPRESSIONS 58 (2008), <http://www.michiganlawreview.org/firstimpressions/vol107/heinzerling.pdf>.

Manufacturers Ass'n v. State Farm, an agency proposing a change in policy must explain its decision and draw a rational connection between the facts it has found and the decision it has made. The agency may not simply assert, "We won the election; now we get to change the policy." For example, if the new administration wants to heed the call of scientific advisors for the Environmental Protection Agency ("EPA") and strengthen the air quality standard for ozone, it must explain why the standard set in the Bush Administration was mistaken.

Ironically, the fact that many of the Bush Administration's decisions were so legally or scientifically inept will help the new administration: the courts have already invalidated some of these policies. In these cases—which include, for example, the ill-fated attempt to create a trading program for the toxic pollutant mercury—the new administration will likely have an easier time explaining its departure from the Bush Administration's approach.

However, because any change in policy will take time and resources, the new administration should carefully identify which changes ought to come first. To me, the answer is clear: the first order of business is to take action on climate change—the defining environmental issue of our time, and one for which the window of effective action is rapidly closing. When scientists tell us that "the Arctic is screaming" and that we must swiftly reduce greenhouse gases or face the prospect of living on a "different planet," an administration that has any hopes of pursuing sustainable environmental policies must first tackle climate change.

Here are just a few of the things the new administration should do, stat:

1. The EPA administrator should formally find that greenhouse gases endanger public health and welfare within the meaning of the Clean Air Act. The EPA has already done the work on this; the Advance Notice of Proposed Rulemaking it issued in July contained all of the evidence necessary to back up such a finding. Little more than the administrator's signature is required. The agency would do well to allow the public to comment on its conclusions before the administrator makes a formal finding. But even following a sixty-day comment period, the endangerment finding could be issued in the first 100 days of the new administration.

The endangerment finding would have a significant legal effect, triggering regulation of many different sources of greenhouse gases under the Clean Air Act. The finding would also have an enormous symbolic effect, ending eight years of denial and deception about the climate.

2. With the endangerment finding in hand, the EPA should regulate new stationary sources (pollutant sources, like factories or power plants, that are fixed in place) under the Clean Air Act. Here, too, the EPA has already done much of the necessary work. After the

Supreme Court ruling in *Massachusetts v. EPA*, the EPA devoted fifty-three employees and more than six months to working on standards for greenhouse gases, including standards for the largest stationary emitters. The EPA should turn its work on this project into law.

3. The EPA should reverse course and grant California permission—a “waiver,” in Clean Air Act parlance—to regulate greenhouse gases from motor vehicles. Section 209(b) of the Clean Air Act provides that California may regulate motor vehicles as long as its standards will be at least as protective as federal standards and, among other things, its standards are necessary to meet “compelling and extraordinary conditions.” In denying the waiver in the Bush Administration, the EPA departed from longstanding practice and ruled that, with respect to regulation of greenhouse gases, California’s program to regulate motor vehicles, standing alone and apart from the rest of California’s clean air program, must meet the conditions for a waiver. The EPA then ruled that the greenhouse gas program did not meet those conditions because climate change will be bad everywhere, and thus California’s problems related to climate are not “compelling and extraordinary.”

Undoing this ruling should be like shooting fish in a barrel. The EPA must first return to its decades-long policy, supported by explicit statutory language, of looking at California’s standards “in the aggregate” when deciding whether the conditions for a waiver are met. Then the EPA must recognize—as it previously had for a long time—that the existence of a problem in states other than California does not preclude California from enacting its own standards.

Granting California’s waiver will have an appreciable effect on greenhouse gases from motor vehicles. Eighteen states have adopted or are in the process of adopting California’s program. Together, these states represent almost half of the U.S. population. Granting the waiver will thus change the greenhouse gas profile of new cars bought by millions of Americans.

4. The United States Forest Service should do whatever it needs to do to revive the Clinton-era rule protecting almost sixty million acres of roadless areas in our national forests and then ensure that the rule remains in force. The rule has been tangled in legal proceedings almost since the day it was announced. After a legal challenge to the Clinton-era rule, the Bush Administration replaced this protective rule with one simply allowing states to ask for protection of the roadless areas within their borders. A district judge in California invalidated the Bush rule and reinstated the Clinton rule, only to have a judge in Wyoming recently de-

cide that the Clinton rule was unlawful after all. The new administration should make its way through whatever procedural knots confront it to reinstate and implement the original rule. Reinstatement of the rule should include renewed protection for the Tongass National Forest in Alaska, the largest national forest in the country. The Bush Administration exempted the Tongass from the Clinton-era rule, and the California court's reinstatement of that rule did not include the Tongass. Taking these steps will help to address climate change, not through traditional pollution control, but through the preservation of carbon sinks that can absorb some of the carbon we discharge into the atmosphere.

Needless to say, this is only a handful of the projects the new president can and must undertake to begin to address climate change. Despite the incompleteness of the list, three features of the new administration's opportunities to tackle climate change stand out. First, the new president can take swift and significant action immediately after taking office, under the laws already on the books. While Congress slouches toward a federal law on climate change, the new executive can show the way. Second, the next administration must attend to agencies beyond the EPA and to statutes beyond the Clean Air Act. Third, pollution control is not the only way to begin to take on climate change. Protecting carbon sinks, and other similar strategies, must also be part of the picture.

While pursuing these policies, the new administration must also be mindful of the damage done by the Bush Administration's dismissive attitude toward law and science. Civil servants at the EPA, the Forest Service, the Department of the Interior, and other agencies must receive the attention and respect of the new president. Many experienced civil servants have hung on through the lean years, hoping for an electoral change that will let them do their jobs again. Repairing the relationship between the White House and civil servants will require sincere and sustained effort on the part of the president.

Two concrete first steps would help. First, the president should resolve not to "break ties" between the agencies and the White House by stepping into a technically complicated dispute and simply taking sides, as the Bush Administration did in choosing the form of the new air quality standard for ozone. Second, the president should put a tighter leash on (or perhaps cage entirely) the Office of Information and Regulatory Affairs, which in the past eight years has become the go-to place for deregulation and inaction. In the name of "smarter regulation" and economic efficiency, this office has squelched or softened many rules that made sense from both an environmental and an economic perspective. The president should put the agencies, not a small cadre of anti-regulatory economists, back in charge of regulatory policy.

The Bush Administration's failed environmental policies have also taken a toll on the agencies' relationships with the courts. When the D.C. Circuit—not exactly the leading edge of the environmental movement—

takes to comparing the EPA to Lewis Carroll's Queen of Hearts, you know something is amiss in the agency-court relationship. With time, and with careful attention to—rather than abrupt dismissal of—the statutes under which they operate, the agencies should be able to set things right with the courts.

And perhaps most importantly, the new administration must restore credibility with the public. Indeed, not much of the project described above will succeed unless the public is on board; the actions needed to address climate change are too dramatic to go forward if the public balks. The new administration must unwind the tight ball of cynicism and distrust that has grown during a lawless and deceitful presidency. On climate, an important first step is finally to say—publicly, formally, and forcefully—that climate change is upon us, that we are to blame, and that we must do something about it. Now.

ENERGY EFFICIENCY AND FEDERALISM

Ann E. Carlson*†

INTRODUCTION

Everyone loves energy efficiency. Among an array of carbon-reducing strategies, energy efficiency surely ranks as the least controversial. Indeed, increasing energy efficiency is frequently lauded as having “net negative costs”—to use the terminology of the Intergovernmental Panel on Climate Change—meaning that the benefits outweigh the costs, even excluding benefits from avoided climate change.

Yet the U.S. system for regulating appliances—which account for a huge percentage of the nation’s carbon emissions—is a mess. Since the federal government began regulating appliance efficiency in the 1970s, the process has been characterized by frequent delays and foot-dragging, followed by lawsuits and legislative overhauls. Amidst the turmoil, a number of states have attempted to assert leadership in setting appliance standards but have often faced federal roadblocks in doing so. I suggest that a reallocation of regulatory authority to parallel our system of auto emissions regulation is in order. The next administration should continue to issue appliance standards, but it should also support legislation to grant California special authority to issue standards that exceed the federal floor.

I. ENERGY EFFICIENCY AND CARBON EMISSIONS

Energy efficiency can include any number of policy strategies, such as setting tougher building standards, reducing transmission line leakage, and improving the efficiency of consumer and commercial products like air conditioners and computers. The savings in carbon emissions from adopting these strategies could be astoundingly large: buildings in the United States, for example, are responsible for *10% of worldwide emissions*. Close to 60% of U.S. commercial building emissions and 75% of residential building emissions come from appliances, including water heaters, air conditioners, heaters, refrigerators, and electronics. Another 28% of commercial emissions and 13% of residential emissions come from lighting, which is

* Professor of Law, UCLA School of Law; Faculty Director, Emmett Center on Climate Change and the Environment. I thank Jonathan Zasloff for insightful comments on an earlier draft, Danae McElroy for superb research assistance, David Uhlmann and the Michigan Environmental Law and Policy Program for their invitation to participate in an excellent symposium and the editorial staff of the Michigan Law Review.

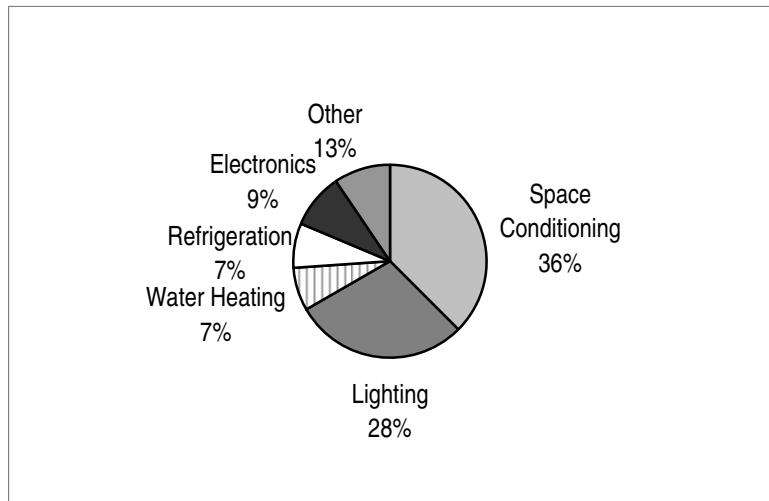
† Suggested citation: Ann E. Carlson, Commentary, *Energy Efficiency and Federalism*, 107 MICH. L. REV. FIRST IMPRESSIONS 63 (2008), <http://www.michiganlawreview.org/firstimpressions/vol107/carlson.pdf>

regulated together with appliances under federal law. Thus more than 85% of commercial and residential emissions come from appliances and lighting.

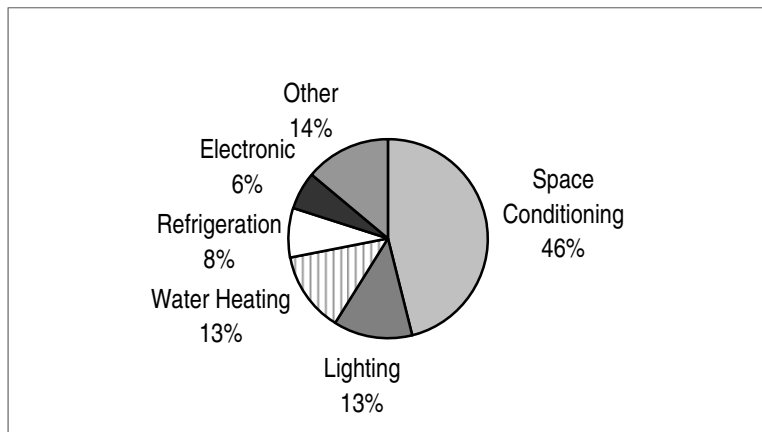
The charts below illustrate the sources of building emissions by commercial and residential sectors, respectively:

U.S. CARBON EMISSIONS FROM BUILDINGS, BY END USE

COMMERCIAL EMISSIONS



RESIDENTIAL EMISSIONS



Source: Department of Energy, Office of Energy Efficiency and Renewable Energy, 2005 Buildings Energy Data Book.

In the long run, a shift to alternative energy sources that emit no carbon would dramatically reduce emissions from buildings. But in the near and medium term, improvements in the energy efficiency of appliances may achieve more reductions at cheaper cost. Moreover unless the U.S. economy moves entirely away from fossil fuels as an energy source, energy efficiency can and should play a central role in stabilizing or reducing overall energy demand. And even if we replace our entire energy stock with renewable fuels, making appliances that reduce the use of those fuels is surely a laudable goal.

II. FEDERALISM AND APPLIANCE STANDARDS

California first began regulating appliance standards in the 1970s, and New York and Minnesota quickly followed. These states regulated appliance standards in order to overcome a market failure: appliances are often purchased not by those who will pay utility bills (renters/lessees of commercial and residential property and owners of new homes) but by developers and landlords, whose incentives are to purchase appliances with the cheapest initial cost rather than those that provide long term energy savings.

In response to state regulatory activity in setting appliance standards, the federal government stepped in. In 1978 Congress enacted legislation that in large measure preempts states from adopting their own standards if the federal government has adopted a standard for the product at issue. States can apply for a waiver of preemption requirements for products with federal standards, but to date the Department of Energy (“DOE”) has rejected the only waiver request that has been submitted—California’s 2006 petition for a waiver for residential clothes washers. The standards for a waiver of preemption requirements are tough to meet: under the Energy Policy Act a state needs to show that more stringent state regulation is necessary to meet “unusual and compelling State or local energy or water interests” that “are substantially different in nature or magnitude than those prevailing in the United States generally.” States must also seek a waiver to regulate products that lack federal standards, but generally speaking the DOE has granted such waivers liberally. Essentially, then, we have federal standards for major appliances (central air conditioning, heat pumps, furnaces, boilers, refrigerators, freezers, washers, dryers ovens dishwashers, etc.) and state standards for less significant appliances (hot tubs, pool pumps, compact audio products, and DVD players, to name a few).

Federal preemption of appliance standards is not problematic if federal authority is used effectively. If the aim of federal regulation is to promote improved energy efficiency, however, the federal government’s track record to date is not promising. Over the past forty years, federal performance on appliance standards has often included delay in implementing enabling legislation followed by litigation, grudging compliance, and the adoption of relatively weak standards. Weak standards obviously produce fewer energy savings and hence fewer greenhouse gas emissions reductions than stronger ones. Delay in the context of climate change has clear significance given the

long shelf life of various greenhouse gases—100 years for carbon dioxide, for example—and the resulting accumulation of gases in the atmosphere.

Federal foot-dragging in setting appliance standards began in the late 1970s and early 1980s. The National Energy Conservation Policy Act, passed in 1978, mandated energy efficiency standards for thirteen appliances if the regulations could be economically justified. In 1982 the DOE announced that it would not issue any standards. *NRDC v. Herrington*, a 1985 D.C. Circuit decision, overturned the DOE's regulatory declination.

In the meantime, since the DOE had a general policy to approve state waiver requests in the absence of federal standards, several states stepped in to regulate, including California, Florida, Kansas, New York, and Massachusetts. The flurry of state legislative activity led to manufacturers again clamoring for national standards and federal preemption. The Natural Resources Defense Council worked with appliance trade groups to pass the National Appliance Energy Conservation Act (“NAECA”) in 1987. The NAECA set appliance standards statutorily for a number of residential appliances rather than relying on the DOE to set them. But many appliances remained without standards, so the pattern has repeated itself several times. States issue standards for appliances omitted in federal legislation, then Congress preempts those standards in legislation, including in 1992 (the Energy Policy Act) and again in 2005 (the Energy Policy Act of 2005). Pending legislation in the 110th Congress includes new provisions to preempt state standards for various types of incandescent lamps. This is precisely the prediction that Elliott, Ackerman, and Millian made in *Toward a Theory of Statutory Evolution: The Federalization of Environmental Law*, an important 1985 article.

The pattern of state regulation followed by federal preemption poses at least two potential problems. First, the federal government frequently sets standards at levels lower than seems appropriate when balancing energy savings against increased manufacturing costs. Second, manufacturers may be faced with competing state standards and the prospect of manufacturing separate products for a number of different markets around the country.

III. LAX APPLIANCE STANDARDS AND DELAYS IN PROMULGATION

The federal government's decision to issue no efficiency standards in 1982 is only one instance of federal inaction. In 2005 fifteen states sued the Department of Energy for failing to upgrade efficiency standards for twenty-two separate appliances. As of 2006, the DOE was behind schedule in setting new standards by as many as thirteen years.

The DOE has also been subject to political pushes and pulls in standard setting. For example, the Clinton Administration adopted a SEER 13 standard for all new air conditioning equipment as of January 2006, an increase from the existing SEER 10 standard. In 2001 the Bush Administration announced it was rolling back the standard to SEER 12, despite the position of its own Environmental Protection Agency that the rollback was based on a DOE analysis that both overstated the costs of the SEER 13 standard and

underestimated the resulting savings. In 2004 the Second Circuit found the Bush Administration's promulgation of the SEER 12 standard invalid in *NRDC v. Abraham*, and the SEER 13 standard took effect January 1, 2007. The difference between the two standards is huge: the SEER 13 standard will reduce energy usage equivalent to the annual energy use of twenty-six million U.S. households (4.2 quads of energy) over twenty-five years versus only three quads of energy under the SEER 12 standard. Further, the higher SEER standard will reduce 25% more smog-forming metric tons of nitrous oxides and carbon than the SEER 12 standard.

IV. MULTIPLICITY OF STANDARDS FOR NATIONAL PRODUCT MARKETS

A byproduct of the federal government's failure to enact standards for certain appliances is that multiple states step in to fill the regulatory void. The result can mean a patchwork of state standards for numerous products.

Even proponents of a strong state role in environmental policymaking advocate federal preemption for the regulation of products for which there is a national market, such as appliances. The argument in favor of national standards is twofold. First, without national standards, states can shift the costs of regulation outside their jurisdictional boundaries. An appliance manufacturer in Michigan will bear many of the costs of regulation imposed by Massachusetts. Second, national product manufacturers enjoy economies of scale in producing the same products for consumers in all fifty states. Multiple state regulations not only eliminate this advantage but also can be costly to comply with. Industry frequently looks to Congress to preempt state laws in favor of national legislation after a flurry of state regulatory activity. This is precisely the pattern that has repeated itself several times with respect to appliance standards.

There are certainly counterarguments to those made in favor of national preemption. Empirical evidence of more stringent auto emissions regulations in California suggests that residents of the state, rather than manufacturers, bear the financial burden of their cleaner technology. And the argument that manufacturers will face fifty separate emission standards absent federal legislation seems overstated. States often piggyback on one another's standards, and few states in the country have market shares large enough to impose separate regulations with confidence that manufacturers will continue to serve their states. Delaware is not California.

In the context of appliance standards not covered by federal standards, it is true that some states jump into the regulatory void to enact their own standards. Most states, however, simply follow California's lead and enact California standards. Nevertheless, they are not required to follow California's lead, and there is no process for harmonizing state regulations to minimize regulatory multiplicity.

V. CALIFORNIA AS REGULATORY LEADER

We have two problems, then, with our current system of appliance standards regulation. The federal government has frequently dragged its feet in issuing national standards and the standards it has issued are often weaker than they could be to achieve significant energy savings at manageable cost. And for those appliances where no federal standards exist, multiple states jump in and sometimes issue different regulations for the same product. Moreover many appliances remain subject to no regulation in states that choose not to regulate.

We frequently view our regulatory options in environmental policymaking as federal regulation, state devolution, or some hybrid of cooperative federalism where the federal government sets minimum standards and states implement those standards taking local conditions into account. With respect to automobile emissions standards under the Clean Air Act (“CAA”), however, we use a different option. Under the CAA, California has special regulatory authority to issue emissions standards that are at least as protective of public health and welfare as federal standards. All other states are preempted from regulating auto emissions but can opt into the California standards. As a result, about a third of the country drives “California cars” and the remainder drives “federal cars.”

This unique scheme of federalism—what I’ve elsewhere called “iterative federalism”—has achieved remarkable reductions in pollutants from cars. To take one example, California cars are more than 99% cleaner than they were in 1970. Moreover the California experience has allowed the state to take policy risks that, if successful, can be and have been exported to the rest of the country. Indeed, over the course of the forty-two years since California was first granted its “superregulator” status, the federal government has followed California’s regulatory lead on at least eight separate occasions. The California provision allows for the best of centralization and decentralization: the state serves as a laboratory of democracy while endorsing industry’s desire to avoid multiple state standards.

Why not adopt a similar regulatory scheme for the regulation of appliance standards? As long as California adopts standards at least as stringent as federal standards, the state should be allowed to regulate all appliances, not just those without federal standards. States that wish to follow California’s regulatory lead should be allowed to opt in, just as they can choose to follow California’s auto emissions standards. States other than California should be preempted from issuing their own standards. The country can then gain the benefits of policy experimentation and leadership while avoiding overlapping and potentially conflicting state standards.

Why California? The state has a long history of regulating in this area—a history that predates federal regulation—and is the de facto regulatory leader for appliances not subject to federal standards. Thus it already possesses the regulatory capacity and expertise to take on the role. Moreover the state obviously has a large enough consumer market to ensure that manufacturers will continue to serve Californians.

Congress should provide California with special status to regulate appliance standards whether or not it passes an economy-wide cap-and-trade scheme to regulate carbon emissions. In theory such a scheme should raise energy prices enough to encourage appliance manufacturers to increase the energy efficiency of their products. In practice, though, the same market failure that led to appliance standards in the first place—a disconnect between those who buy appliances and those who pay their long term energy costs—will likely interfere with price signals sent by a carbon cap-and-trade system. Instead, Congress should allow California to set standards more stringent than federal law in order to encourage policy innovation that, if successful, can ultimately be exported to the rest of the country.

CONCLUSION

Tackling climate change will require regulatory innovation across sectors and across levels of government, from cities to states to the federal government to international organizations. Appliance-efficiency regulation is an area that has largely escaped scholarly attention, yet holds the promise of significant carbon reductions at a cost savings. Locating regulatory power in both the federal government and in California magnifies the likelihood of maximizing these savings.

A U.S.-CHINA PARTNERSHIP TO PROTECT OUR CLIMATE

*Thomas P. Lyon** †

INTRODUCTION

Climate change is an environmental problem of global dimensions, but we lack a system of international law that can impose a coordinated response. Bilateral agreements between key nations may present a solution. A partnership between the United States and China to develop technology for carbon capture and sequestration (“CCS”) offers hope for mitigating the climate impacts of China’s rapidly growing number of coal-burning electric power plants.

I. CURRENT CLIMATE GOVERNANCE

With the Kyoto Protocol set to expire in 2012, the future of global climate policy is hazy at best. This international agreement was negotiated in an attempt to halt the growth of greenhouse gas emissions around the world, and it has been accepted by most nations with the notable exception of the United States. Nevertheless, although 182 countries have ratified the Kyoto Protocol, many Kyoto signatories are seriously out of compliance with their Kyoto obligations to cut emissions of greenhouse gases (“GHGs”). Canada has disavowed its commitment to the policy, and developing countries have no abatement obligations under Kyoto.

Into the breach of climate governance, local leaders are stepping forward with their own climate policies at the level of cities, states, and regions. Cool Cities programs, state Renewable Portfolio Standards, and the Regional Greenhouse Gas Initiative in the Northeast are just a few examples of the proliferation of local climate policies in America. A similar process at the international level would offer a path forward in these challenging circumstances. In particular, a bilateral agreement between the United States and China on CCS could make a significant difference in mitigating climate change.

* Director, Erb Institute for Global Sustainable Enterprise, and Professor of Sustainable Science, Technology and Commerce, University of Michigan.

† Suggested citation: Thomas P. Lyon, Commentary, *A U.S.-China Partnership to Protect Our Climate*, 107 MICH. L. REV. FIRST IMPRESSIONS 70 (2008), <http://www.michiganlawreview.org/firstimpressions/vol107/lyon.pdf>.

II. THE CASE FOR A U.S.-CHINA PARTNERSHIP

The case for a U.S.-China partnership on CCS rests on three critical points. First, more than any other country, the United States bears responsibility for the man-made GHGs that are warming our planet today. Second, more than any other country, China will determine our climate future. Third, China is unlikely to forgo the use of coal, its main indigenous energy resource and primary producer of carbon emissions. Taken together, these three points imply that the most important way to curb global warming may be to capture the GHGs from coal-fired power plants and store them in a fashion that keeps them out of the atmosphere. This process is known as carbon capture and sequestration. If the United States fails to work with China to deploy CCS technology, U.S. domestic climate policy will be largely moot.

As a nation, we Americans bear a moral responsibility to own up to our role in global warming. Carbon dioxide remains in the atmosphere for over a century, so the cumulative emissions over the last hundred years created the warming we experience today. From 1950 through 2005, the world's top GHG emitter (in CO₂ equivalent, a measure of carbon dioxide concentration) was the United States, at 186.1 billion tons. Trailing well behind the United States were the European Union countries at 127.8 billion tons, Russia at 68.4, China at 57.6, and Japan at 31.2 (as Michael Glantz [noted](#) in *What Makes Good Climates Go Bad? . . . and . . . Why Care?*). We remain the richest nation in the world, as well as the world's innovation leader. We can—and should—provide the technological leadership to solve the global climate problem, and create new green industries and jobs in the process.

Although the United States was historically the world's emissions leader, that "honor" has been passed on to China. It is now widely estimated that in 2006 China surpassed the United States to become the world's largest emitter of GHGs, with current emissions already 14% greater than those of the United States. The Energy Information Administration projects that by 2030, China will emit 11.2 billion tons of GHGs, while the United States will emit "just" 7.95 billion tons. The majority of China's energy growth will come from coal. Since coal is the one fossil fuel that China possesses in abundance, it is highly unlikely that China will forego the use of this domestic fuel source. We should anticipate a world in which China continues to build one or two new coal plants every week.

Since China will continue to rely heavily on coal-fired electricity, even the best U.S. policy to limit domestic GHG emissions will fall woefully short of solving the climate problem. Thus, CCS is essential.

III. THE UNITED STATES SHOULD LEAD THE DEVELOPMENT OF CCS TECHNOLOGY

There are several ways of developing CCS technology. The best known is to inject CO₂ deep underground into depleted oil and gas wells or saline aquifers. Oil companies already do so in order to draw more oil from exist-

ing reservoirs. Expanding this practice to encompass all CO₂ emissions from coal plants would require a massive new infrastructure of pipelines to carry the gas to spots with the necessary geology. An alternative is “mineralization,” in which finely ground minerals are heated and combined with CO₂ and water to produce calcium carbonate, a harmless compound that is the primary molecular component of limestone. Mineralization would produce large amounts of powdered calcium carbonate that would have to be disposed of in the ground or allowed to collect on the surface. Either system would be difficult and expensive to implement, but the technology appears to work.

America’s historic GHG emissions and its innovation edge mean that we should be at the forefront of developing new CCS technologies. And we should be prepared to transfer them at low cost to the developing world, especially China. Such a program will require a partnership between the public and private sectors. The public sector needs to provide basic research, through the national laboratories and through funding scientists and engineers in academia; it also needs to provide financial support for commercialization of promising technologies. The private sector needs to take the lead on commercialization, and to work closely with scientists and engineers doing basic research. Joint ventures for commercialization between Chinese and American firms represent a promising approach to partnering with China and should be encouraged. This would set the stage for market competition to cut costs and to roll out the technology on a large scale.

One of the concerns in implementing such a policy will be protecting the intellectual property of the firms that participate. If the U.S. government takes its moral responsibility seriously, however, and provides the bulk of the funding for the effort, then this issue is resolvable. In particular, we can draw upon the model the U.S. Department of Defense uses in contracting for new technology. The department funds early stage R&D and signs contracts with defense contractors to produce and test prototypes. Since the government is paying for the effort, it can exercise control of the intellectual property created. Typically this involves sharing a successful prototype with a “second source,” another firm that is invited to come in and compete with the original contractor for large-scale production. This process puts intellectual property in the hands of two or more rivals, who then bring the power of competition to bear on reducing procurement costs.

Unfortunately, instead of moving forward with a plan along the lines sketched out above, we have been moving in the opposite direction. The U.S. Department of Energy decided in January 2008 to pull out of a major FutureGen project that was a key U.S. R&D effort into CCS, although it continues to offer funding for new CCS projects. Also discouraging is the recent abandonment of several electric utility projects developing “capture ready” coal-fired power plants. If we lack the political and business will to make CCS work here in the United States, we have little hope of mitigating China’s coal-fired emissions.

CONCLUSION

As long as the United States refuses to accept a leadership role commensurate with its responsibility for global warming, developing nations will have an easy excuse for inaction and the world will continue to heat up. Fortunately, both presidential candidates have promised to take action to combat climate change. A domestic policy to limit emissions is not enough, though. It is critical that we keep in mind the global importance of China, coal, and CCS. As the present and future primary sources of greenhouse gases, the United States and China must collaborate to reduce emissions. For America's part, we sorely need to work out how to develop CCS technology, and we need to transfer it at low cost without violating the intellectual property rights of domestic firms. If we shoulder our moral responsibility to lead in the development of CCS technology, and to transfer it to the developing nations that need it, we stand a chance of averting the looming climate crisis.

SUSTAINABLE WATERSHEDS

*Jonathan Z. Cannon** †

INTRODUCTION

“Sustainability” and “sustainable development” are contested terms, often characterized as vague or ambiguous. Nevertheless, they are invoked as core principles of national and international environmental laws, such as those of the European Community, and seem thoroughly entrenched in the global discourse on environmental issues. While less pervasive than in Europe, notions of sustainability also appear in U.S. environmental law, most significantly in the National Environmental Policy Act (NEPA), codified at 42 U.S.C. § 4331(a).

Despite the ambiguities surrounding it, sustainability can provide useful guidance in managing the major natural systems on which we will depend for the indefinite future, such as the climate system, the oceans, and aquatic and associated terrestrial ecosystems, which I will reference together as watersheds. This Commentary argues that, by any interpretation of sustainability, additional public and private investment should be made to protect and restore watersheds and their incorporated landscapes as sources of ecosystem services. This investment may require reducing current consumption but is justified because it will enhance the well being of the present generation and also enable future generations to enjoy a quality of life equal to our own. The Commentary concludes by outlining tools that are available to achieve this goal and steps that the next administration could take to assure their effective use.

I. SUSTAINABILITY INVESTMENTS

The classic articulation of sustainable development appears in the 1987 Report of the World Commission on Environment and Development (commonly referred to as the Brundtland Report): “meeting the needs of the present without compromising the ability of future generations to meet their own needs.” In June 1992, the Rio Declaration articulated twenty-seven principles to advance economic development, environmental protection, and respect for human rights, all under the rubric of sustainable development. One of the core sustainability principles is intergenerational equity, which posits a duty to preserve or enhance resources that may be necessary for

* Director of Environmental and Land Use Law Program; Professor of Law, University of Virginia Law School.

† Suggested citation: Jonathan Z. Cannon, Commentary, *Sustainable Watersheds*, 107 MICH. L. REV. FIRST IMPRESSIONS 74 (2008), <http://www.michiganlawreview.org/firstimpressions/vol107/cannon.pdf>.

future generations of humans while adequately providing for those living in the present. Differing interpretations of the intergenerational obligations focus on how many resources (and of what sort) the present generation is entitled to use and how many resources (and of what sort) it is obligated to leave.

These competing interpretations might lead us in quite different directions in cases involving natural resources or environmental quality where the intergenerational tension is substantial—for example, a situation in which there are net gains in current human well being from the degradation of natural assets, but in which the resulting problems will reduce benefits from those assets to future generations. For reasons stated below, however, it will often be the case that the intergenerational tension is small or non-existent—investments to protect natural capital will return net value to the present generation while also enhancing benefits to future generations. These are the targets of opportunity under any interpretation of sustainability, and among them are programs for increased protection and restoration of the nation's watersheds.

II. THE WATERSHED CHALLENGE

Watersheds provide a range of ecosystem services, including provisioning services (e.g., food, water, wood, biomass), regulating services (e.g., water filtration, flood control, aquifer recharge, carbon sequestration), cultural services (e.g., recreation, aesthetic enjoyment, spiritual fulfillment), and supporting services (e.g., soil formation, nutrient cycling, habitat). The Millennium Ecosystem Assessment Synthesis Report, an expert study conducted at the request of the UN Secretary General Kofi Annan, outlined these services in detail. In the United States as elsewhere, watersheds are largely held in private ownership and may not be managed optimally for the ecosystem services they provide because the owners are not generally compensated for their watershed's ecosystem services (except for provisioning services). Maintaining capacity to provide the services amounts to a positive externality for the landowner, as Jules Petty and other authors discussed in *Policy Challenges and Priorities for Internalizing the Externalities of Modern Agriculture*, an article that appeared in 2001 in the *Journal of Environmental Planning and Management*. As noted in the Millennium Assessment, the resulting market failure has led to significant recent declines in ecosystem services worldwide, often to the detriment of both present and future generations.

Plenty of evidence indicates that enhanced watershed management can make cost-effective contributions to the present generation's welfare as well as enhance the diversity of options for future generations. Our experience in water quality management provides some of that evidence. The federal Clean Water Act established national water quality goals in the public interest. Some progress toward meeting these goals has been made, mainly through imposing stringent regulations on point source dischargers (e.g., factories, sewage treatment plants). However, in almost half of the U.S. wa-

ters for which we have data, these goals have not been met. The 2000 Environmental Protection Agency (“EPA”) National Water Quality Inventory states that unregulated nonpoint source runoff from rural and urbanizing lands is the main cause of this failure.

Management measures exist that can produce substantial reductions in the flow of nutrients, sediment, and other pollutants from these lands (e.g., no-till agriculture, vegetative stream buffers, cover crops, storm water swales), and these reductions that can be achieved for a small fraction of the cost of further reductions by point sources. Watershed protection has also been demonstrated to be a cost-effective approach to drinking water quality. In a now famous example, the City of New York undertook \$1.5 billion in expenditures for environmental protection (including land preservation through acquisition and conservation easements) and economic development in the watersheds that supply the city’s drinking water in order to assure a supply of safe water for its residents and avoid a requirement under the federal Safe Drinking Water Act to construct an \$8 billion water filtration plant. As James Salzman and his co-authors noted in 2001 in the *Stanford Environmental Law Journal*, the city’s action “inspired hope” that governments have the capacity to translate the value of ecosystem services into protections for the watersheds providing those services.

Surface water quality and drinking water quality do not exhaust the benefits available at relatively low cost from watershed-protection measures. And multiple benefits often flow from the same protective measure. For example, vegetative stream buffers not only reduce polluted runoff but also regulate water temperature, provide habitat, sequester carbon, and offer recreational or aesthetic experiences. The policy challenge is to create incentives to invest in such measures when merited by the full array of short- and long-term benefits. Meeting this challenge requires comprehensive assessment of watersheds as a source of ecosystem services and an integrated strategy for assuring that appropriate investments are made to sustain these services.

Ultimately watershed protection is primarily the province of state and local governments, but the federal government has significant resources and authorities that can be used to advance sustainable watersheds. The next Part briefly suggests a process designed to marshal those resources and authorities to best effect.

III. THE SUSTAINABLE WATERSHED TASK FORCE: A PROPOSAL

To facilitate this enhanced watershed investment, the next president should issue an Executive Order with two basic components. First, the Order would direct all federal agencies to administer their resources and authorities to advance sustainable practices across the nation’s watersheds. Second, the order would create an interagency Sustainable Watersheds Task Force to coordinate efforts among federal agencies and state and local governments, to develop and implement criteria for federal investments in watershed protection and restoration, and to assemble data relevant to this

effort. The Task Force's objective would be the most effective deployment of tools available under existing legislation and identification of any additional legislative needs.

The membership of the Task Force should not be limited to federal agencies with relevant program responsibilities, such as the EPA, the Departments of Agriculture and the Interior, and the Council on Environmental Quality (with its responsibilities under NEPA). It should also include members from the Office of Management and Budget, the Council of Economic Advisors, and the Office of Science and Technology Policy to help ensure that investments are economically, scientifically, and technically sound. The Task Force should report to the President within eighteen months of its creation to describe its actions to date, its plan for addressing issues that remain, and its recommendations for presidential action, including legislative proposals to Congress.

The federal tools presently available for watershed protection include regulation, market-based approaches, and subsidies. Below I discuss some issues with each and how the Task Force might improve their effectiveness.

Prescriptive regulation is perhaps the most obvious tool to promote watershed protection and restoration. Historically, state and local governments have regulated land use and local waters, but federal regulations do apply. Examples of prescriptive federal regulation include limitations on discharges from concentrated animal feeding operations, urban stormwater systems and other point sources under the Clean Water Act (CWA), dredging or filling of wetlands (considered "waters of the United States"), and destruction or alteration of habitat on which endangered species depend.

Although some have argued for extending the reach of federal regulation in watersheds—for example, to include nonpoint source as well as point source dischargers under the CWA—there is strong political resistance to expansion of the federal regulatory presence. Many see prescriptive federal regulation, as applied at the watershed or landscape level, as violating federalism principles and as inevitably inefficient because of its inability (or unwillingness) to take local conditions and concerns into account. However, opportunities remain to coordinate the application of the existing regulatory tools and to link them with state and local regulatory authorities to create effective watershed management regimes. In California's Natomas Basin, for example, the CWA and Endangered Species Act were applied in coordination with state and local authorities to create a plan, the Natomas Basin Habitat Conservation Plan ("NBHCP"), to protect species and habitat in the watershed while allowing some development and continued agriculture. The University of California-Davis's Information Center for the Environment [commented](#) that "the greatest purpose of the NBHCP is balancing the biological and local needs in the Basin."

Market-based approaches provide credits to landowners who undertake watershed-protection measures and allow them to trade these credits for cash. Given the market failure affecting ecosystems services discussed above, demand for these credits does not come naturally. Rather, it must be generated by government restrictions on activities that degrade natural re-

sources or environmental quality. Markets for these credits have already emerged within existing regulatory regimes, including mitigation banks for wetlands and species protection and trading schemes for water pollution control. National climate change legislation is likely to create an additional, substantial market for carbon sequestration measures, including carbon emission offset projects on agricultural and forest lands (for example, see [Section 2403 of S. 3036 in the 110th Congress, Second Session](#)); this could help strengthen incentives for practices, such as reforestation and no-till agriculture, that are also desirable for enhancing other ecosystem services.

The existing markets tend to be thin, either because they are poorly designed (for example, structural disincentives for nonpoint dischargers to engage in pollution reduction trades under the CWA), or because the local and isolated nature of some ecosystem services places inherent limitations on the usefulness of a market-based approach. The Task Force's agenda should include working towards increased participation in existing markets to the extent possible; overcoming information problems; reducing transaction costs; addressing any basic design problems; planning the integration of these markets with the future carbon market to enhance returns for worthy investments; and improving compatibility with local watershed institutions.

Price instruments, such as subsidies, offer another kind of payment-for-ecosystem service. The EPA and Departments of Agriculture and the Interior administer substantial programs that pay landowners for undertaking measures that maintain or restore ecosystem services. The Farm Bill administered by the Department of Agriculture provides perhaps the largest source of funds, including land reserve programs that pay to take farmland out of production and working lands programs that provide payments for environmentally beneficial practices on actively managed farmland. The Farm Bill and other federal legislation also provide subsidies targeted at particular watersheds deemed of national significance, such as the Chesapeake Bay and the Great Lakes. A concern with these programs, as with any subsidies distributed through central institutions that offer the only or primary sources of such aid, is that they may be ineffectively or inefficiently administered—a concern that Jonathan Baert Weiner raised in his 1999 article in the *Yale Law Journal*, *Global Environmental Regulations*. The Task Force should focus on improving both the cost effectiveness and the environmental performance of these programs, coordinating them with each other and with regulatory and market-based programs, and developing tools to monitor and assess results.

CONCLUSION: MANAGING THE HORIZONTAL AND THE VERTICAL

As this analysis suggests, the work of the proposed Sustainable Watersheds Task Force has two main dimensions: one vertical, coordinating across the federal government, the other horizontal, extending to state and local institutions. Along the first dimension, the goal is to improve the cost-effectiveness and environmental performance of federal watershed-related programs, both individually and in the aggregate. Although arrangements

exist within individual federal agencies and departments to coordinate watershed planning and policy (e.g., EPA's Watershed Management Council), interagency coordination is weak. Along the second dimension, the goal is to better integrate the federal programs with local watershed efforts. This latter goal is particularly important for watersheds that have been identified as having national significance but that still depend substantially on the mobilization of state and local resources and authorities.

A RENEWED ROLE FOR CONSERVATION IN ENVIRONMENTAL POLICY

Amie Medley*†

“We simply must balance our demand for energy with our rapidly shrinking resources. By acting now, we can control our future instead of letting the future control us.”

—Jimmy Carter, April 18, 1977

INTRODUCTION

Environmental issues loom large for both candidates in the current presidential campaign. High-profile issues such as the regulation of greenhouse gases and the development of alternative fuels take center stage in the national debate. But not since President Carter’s impassioned speeches in the 1970s, which warned Americans that their country’s dependence on oil was “likely to get progressively worse through the rest of this century,” has there been serious attention to the role conservation should play in addressing environmental issues such as climate change and sustainability. The next presidential administration should highlight the importance of individuals taking action in their homes and communities in order to decrease the unsustainable demand for natural resources.

U.S. environmental policy tends to focus on finding new ways to meet the existing demand for resources, ranging from fossils fuels to water, instead of on reducing the demand for these resources through conservation. To the extent that reducing resource consumption comes into play, most regulations are targeted at corporations. However, individual citizens’ awareness and reduction of resource consumption could result in a substantial change. According to a report from the Energy Information Administration, while the industrial sector—which includes manufacturing and agriculture—leads carbon emissions with a total of 1.9 billion metric tons, the residential sector is not far behind with annual emissions of 1.2 billion metric tons. The commercial sector, which includes schools and shopping malls, is behind the residential sector with energy-related carbon emissions of 1 billion metric tons annually. Because the residential portion of emissions is so substantial, ignoring energy conservation by private individuals does not make sense in a comprehensive environmental policy. The

* J.D. Candidate May 2009, University of Michigan Law School.

† Suggested citation: Amie Medley, Comment, *A Renewed Role for Conservation in Environmental Policy*, 107 MICH. L. REV. FIRST IMPRESSIONS 80 (2008), <http://www.michiganlawreview.org/firstimpressions/vol107/medley.pdf>.

next administration should highlight the fact that relatively small changes by individual citizens and the communities they live in can make a difference.

This Comment will discuss why a reduction in the overall consumption of resources should become a part of any policy aimed at addressing environmental issues in the United States and why individuals must be involved in that effort. While there is only so much the presidential administration can do to directly influence individuals' consumption habits, its interactions with state and local governments can effect change closer to home. Because local governments are uniquely positioned to influence their residents' actions, supporting local policies that require or encourage individuals to decrease their personal use of natural resources is one way that the next presidential administration can work toward this goal. By augmenting direct federal action with support for state and local governments, the next presidential administration can ensure that individuals have access to the resources and knowledge they need in order to reduce their personal consumption, thus contributing to a cleaner, more sustainable, and less energy-dependent nation.

I. THE PRESIDENTIAL ADMINISTRATION'S ABILITY TO DIRECTLY INFLUENCE INDIVIDUAL BEHAVIOR

The next presidential administration can directly influence individual behavior in relation to resource consumption in somewhat limited ways. Some federal agencies provide individuals with information about conservation. The Department of Energy ("DOE") website offers extensive information about saving energy, including tips for homeowners and car owners. The Environmental Protection Agency ("EPA") website offers an individual emissions calculator so that interested individuals can see exactly how big their carbon footprint is. Although it is difficult to measure the effects of providing this information, it is an inexpensive way to make resources available to those who seek them.

The administration could make a more perceptible contribution by renewing tax credit programs that create incentives for consumers to buy energy efficient products. The Energy Policy Act of 2005 provided tax credits that encouraged individuals to choose energy efficient cars and appliances. One provision of the Act, which allowed homeowners to receive up to a \$500 tax credit for purchasing certain Energy Star appliances, expired on December 31, 2007. The tax credits for energy efficient vehicles (including hybrids) applied to vehicles put into service starting January 1, 2006, and were phased out after fifteen months or when the manufacturer had sold 60,000 cars. This complex formula still applies to energy efficient cars hitting the markets for the first time but will expire altogether in 2010. These tax credits encourage individuals who may be on the fence about whether to buy a new vehicle or update their home appliances to choose energy efficient options, and they should be renewed.

II. THE PRESIDENTIAL ADMINISTRATION'S ABILITY TO INFLUENCE INDIVIDUAL BEHAVIOR THROUGH COOPERATION WITH CITIES AND LOCAL GOVERNMENTS

Because the administration's ability to directly influence individual behavior is limited, it should also seek to involve local governments in its efforts to influence individuals' conservation habits. Cities and local governments should be involved because of their unique ability to create or improve infrastructure, offer services such as recycling programs, and gauge what sort of policy measures would gain support in their specific communities. According to a 2007 United Nations Report on World Urbanization Prospects, 81.4% of Americans live in urban areas—defined as cities or metropolitan areas with a population of at least 750,000. Governments of large cities and municipalities comprising metropolitan areas thus have a significant opportunity to influence individual resource consumption.

Federal agencies can encourage conservation on a community level by offering resources and recognition to those who take action voluntarily. The EPA, for example, offers several "partnership programs" in which cities, organizations, and businesses can participate. Such programs offer participating local governments resources and information to help them develop programs encouraging conservation in their communities. Participants benefit from the recognition of their commitment to the environment, through their membership in these partnerships or awards received for their efforts. In today's environmentally savvy society, showcasing concern for the environment creates good publicity.

One such partnership, WasteWise, recognizes cities that offer recycling programs, including curbside pickup and drop off centers. By providing recycling services, cities can give their residents the opportunity to take responsibility for reducing their consumption of resources. Though the EPA does not have the authority to mandate recycling programs, the agency attempts to encourage local governments to set up such programs by providing them with information and resources and offering recognition through WasteWise. By publishing an annual report on the generation of solid waste and the amount of recycled materials, the EPA quantifies the contributions of individuals and their communities, demonstrating that individual contributions add up to a substantial increase in recycling. The report for 2006 tracks the increase in the percentage of waste recycled, from 16.9% in 1990 up to 32.5% in 2006.

Another EPA effort is the Green Power Partnership Program, in which cities, organizations, and businesses voluntarily commit to purchase a certain percentage of their energy from providers that use renewable sources such as wind and solar. Although the program's only incentive is an opportunity to showcase environmental awareness and social responsibility, it has been somewhat of a success, attracting such diverse members as Intel Corporation, the American Jewish Committee, New York University, and the city of Boston. In response to increased demand, utilities will put more time

and money into providing power from green sources, making it a more viable option for private individuals as well.

The next president can further encourage local efforts to increase individual conservation and environmental responsibility by recognizing them and mirroring their commitments on a national level. President Bush's decision not to pursue U.S. ratification of the Kyoto Protocol in 2005 triggered a strong response from mayors across the nation. As NPR reported on July 31, 2007, more than 600 mayors from cities around the United States committed to meeting protocol requirements for reducing greenhouse gases in their own cities. This commitment requires them to reduce emissions to 7% below 1990 levels by 2012, which will require the participation of individuals and corporations in their communities. This reduction is particularly challenging because these cities have seen increases in emissions ranging from 6% to 27% between 1990 and 2005, when Seattle's Mayor Greg Nickels became the first mayor to commit to meeting the protocol goal.

Whether or not the cities actually meet the goal, they are taking actions tailored to their own communities to reduce greenhouse gases that involve their residents in the effort. For example, the *New York Times* reported on November 14, 2006 that the city of Boulder had adopted the first municipal carbon tax, which gives its residents an incentive both to conserve energy and to switch to alternative sources of electricity such as wind power. The next presidential administration should acknowledge these efforts and this show of support for involvement in addressing environmental issues on an international level by reconsidering the Kyoto Protocol. The new administration could either sign on to the protocol or, if concerns about the effect of the treaty on domestic law are prohibitive of officially signing, adopt requirements that would mirror those contained within the protocol.

The above examples demonstrate the willingness of a number of cities to take steps toward environmental protection, many of which would be unlikely to garner support at a federal level. However, contrary to what one might expect, it is not just cities with liberal-leaning populations who are taking environmentally progressive actions. Rather, cities committed to meeting the Kyoto Protocol standards represent all parts of the political spectrum, from the conservative-leaning Fort Wayne, Indiana, to the more liberal Boulder, Colorado. The fact that addressing environmental concerns is not confined to one political party at the local level may demonstrate that even policies unable to garner support at the national level may have success when adopted at the local level in direct response to the concerns of those who live in the area.

Another way that the next presidential administration can encourage conservation on an individual and community level is, of course, through funding. Several federal agencies fund local projects aimed toward environmental issues. The EPA funds efforts such as environmental cleanups through Superfund and research on new technologies under the Science to Achieve Results ("STAR") fellowship program. The EPA already recognizes, to some extent, the importance and the promise of working with local governments to achieve environmental goals. In the budget posted on its

website, the EPA states that its “strategy will continue to be based on . . . establishing and expanding partnerships with businesses, industries, tribes, states, communities, and consumers.” Additionally, the Federal Transit Authority provides funding through a grant program for public transportation projects. By funding local projects, these agencies support local government efforts to address environmental issues specific to their location, infrastructure, and population.

The focus of this Comment is not on determining how federal funds should be allocated; however, the next presidential administration should consider carefully which efforts prioritize and support conservation and sustainable energy policy. Even in the current political climate, in which oil prices are high and support for developing clean technologies abounds, the proposed budget for the DOE for fiscal year 2009 would decrease appropriation for renewable energy and energy efficiency by 27.1%, while the total budget for fossil fuels, including clean coal technology and strategic petroleum reserves, would increase by 24.6%. This redistribution of funds again highlights the federal government’s reticence to recognize that fossil fuels are not going to be a source of energy for much longer and to address the problem through new technology or conservation.

CONCLUSION

The next presidential administration should encourage individual conservation as a part of its environmental policy. It can do so both directly, by providing information and tax credits, and indirectly, by working with cities and local governments. Cities and local governments can affect the environment by creating and implementing policies that, in turn, allow their residents to reduce their consumption and conserve natural resources. Through both direct efforts and cooperation with local governments, the next presidential administration can support local efforts and send a clear message that local communities and the individuals that live in them have an important role to play in addressing climate change and increasing sustainability.

AMERICA'S NEXT MOVE: THE UNITED STATES' DOMESTIC AND INTERNATIONAL POLICIES ON GLOBAL WARMING AFTER THE KYOTO PROTOCOL

Joshua Van der Ploeg*†

INTRODUCTION

As the 2008 presidential election draws near, the top issue on voters' minds is the state of the economy. While the current economic downturn has an immediate impact on consumer confidence and financial stability, there is one unavoidable issue threatening a more serious fiscal impact: global climate change. As greenhouse gases accumulate in the atmosphere, temperatures are rising faster than the unemployment rate. Unfortunately, the international [Kyoto Protocol](#) to combat global warming—negotiated in 1997 and ratified by nearly all signatory countries except the United States and Kazakhstan—will expire in 2012, at the end of the upcoming presidential term. Whichever candidate the American people select to lead our nation for the next four years will face two great challenges to confront global climate change: what direction to take the country within the international community as the world decides how to replace Kyoto, and what policies to implement domestically to help curb this impending crisis.

I. POST-KYOTO INTERNATIONAL STRATEGIES

The prospect of confronting climate change often seems as though it will cause a global meltdown—both figuratively and literally—and yet, with these threats come great opportunities to foster solutions through collective action and cooperation. One primary area of division that has plagued Kyoto is the role that developing nations should play relative to the world's wealthiest countries. The [present protocol](#) exempts developing countries from its strict emissions caps, requiring them only to monitor and report their pollution output. India and China are included in this exemption, despite the rapid growth of their economies and the commensurate increases in pollution. Indeed, China is now the world's second-largest polluter after the United States. President Bush decried

* J.D. Candidate May 2010, University of Michigan Law School.

† Suggested citation: Joshua Van der Ploeg, Comment, *America's Next Move: The United States' Domestic and International Policies on Global Warming After the Kyoto Protocol*, 107 MICH. L. REV. FIRST IMPRESSIONS 85 (2008), <http://www.michiganlawreview.org/firstimpressions/vol107/vanderploeg.pdf>.

the exemption of India and China in his June 2001 [statement](#) on climate change because the size of their economies demonstrates that they have sufficient resources to share the costs of capping emissions.

Any post-Kyoto agreement will need to include more participation from developing nations to win over the United States' support. As President Bush [stated](#), "These and other developing countries that are experiencing rapid growth face challenges in reducing their emissions without harming their economies. We want to work cooperatively with these countries in their efforts to reduce greenhouse emissions and maintain economic growth." Though the next president may not oppose Kyoto solely because of its exemption of developing countries, the emergence of China, India, Russia, and Brazil will require him to pay increased attention to the role developing countries play.

The European Union's statement on how to address climate change after Kyoto suggests that the next President's area of focus should be a multi-stage approach based on countries' different levels of economic development. The report, *Towards a Post-2012 Climate Change Regime*, explains:

[I]n the early stage of development, countries can increase their emissions per capita due to industrialization. In a second phase, countries that have reached a certain development needed to stabilize emissions per capita as industrialization is completed and/or efficiency gains are made on par with growth in production. Finally, countries at the highest level of development need to reduce their per capita emissions by making the economy more energy and emission efficient. The threshold for participation can decline with time as technology becomes more efficient. Such a decline is necessary to reach climate stabilization targets.

Mitigation of future climatic damage should continue to be a priority predominantly for developed nations. However, developing countries in particular should invest in additional methods to adapt to the current level of global warming already past the point of possible correction. While mitigation efforts will require wealthy nations to take proactive steps to prevent future damage, methods of adapting to the effects of global warming will allow poorer nations to expand their economies in environmentally friendly industries that recognize the changing world climate. Under this plan, the poorest countries (i.e., those with a per capita GDP of less than US \$4,000) initially would still be allowed to increase emissions per capita to facilitate industrialization. Countries of middle-level economic development would have to stabilize emission levels per capita, with exceptions for certain sectors. Finally, the most developed countries would have to reduce their per capita emission levels by increasing energy efficiency.

Concerned international groups have already begun to propose solutions. Most recently, the [UN Climate Change Conference in Bali](#), Indonesia, attempted to devise a successor plan to the Kyoto Protocol

that would include techniques to mitigate further climate change, reduce deforestation in developing countries, and expand ways to adapt to the damage that has already occurred. However, the conference ultimately resulted in a predictable row between the United States and the European Union on emissions limits. In his article *Climate Change: Beyond Bali*, David B. Sandalow of the Brookings Institution commented, “The EU deserves enormous credit for beginning to implement a serious domestic program to cut emissions of heat-trapping gases. Yet its Bali proposal repeated a well-worn formula unlikely to produce broader breakthroughs in the fight against global warming.” Still, by increasing the role of developing countries, the [Bali Action Plan](#) succeeded where Kyoto had failed.

Many developing countries stand to gain economically from steps to ease dangerous smog and air pollution levels. A *New York Times* article from 2007, *Poor Nations to Bear Brunt as World Warms*, reported that poor countries—disproportionately located in tropical and equatorial regions—will likely receive less rainfall and experience more frequent droughts as a result of global warming, while northern nations with higher standards of living will collect more precipitation. The article continues: “Scientists say it has become increasingly clear that worldwide precipitation is shifting away from the equator and toward the poles. That will nourish crops in warming regions like Canada and Siberia while parching countries—like Malawi in sub-Saharan Africa—which are already prone to drought.” Reducing carbon dioxide levels in equatorial regions by building better roads and improving access to mass transit will ease the potentially devastating consequences on weather patterns, improve public health, and create further economic opportunities for the most impoverished inhabitants.

But the most impoverished countries should not be forced to pay for the misdeeds of those developed countries that have contributed most to this problem. In 1992, many of the world's wealthiest countries signed the [UN Framework Convention on Climate Change](#) and pledged their support to the most vulnerable developing nations. The Convention states:

The Parties should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development in all Parties, particularly developing country Parties, thus enabling them better to address the problems of climate change. Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.

The next President should support that international commitment in two ways: (1) by unilaterally providing foreign aid to help poor countries adapt to the dangers of climate change—specifically flood prevention, drinking water access, and infrastructure development—and (2) by negotiating a post-Kyoto international accord that includes a commitment

to providing economic assistance to developing countries along with global cuts in emissions levels.

II. THE UNITED STATES' DOMESTIC APPROACH

Though both presidential candidates recognize the need to address climate change at an international level, the next President will have to win the support of Congress to ratify such an agreement. Since the Senate [voted](#) unanimously in 1997 against agreements that do not require developing countries to work alongside developed nations, the next administration must work to convince U.S. legislators to go along with any post-Kyoto plan. Legislators may be willing to take action, but disagree substantially on how best to achieve their goals.

Granted, the debate over global warming is in a different place now than it was in 1997. [Virtual unanimity](#) within the scientific community that global warming is here and here to stay makes the remaining climate skeptics' jobs more difficult. But the continuing uncertainties of economic impact fuel the debate about how much action is appropriate. Many lawmakers are reluctant to take substantial action based on largely speculative conjectures about the effects regulation could have on either domestic or international economies. The ability to weave discussions of environmental protection into equally pressing concerns like the presently faltering economy, then, is both pragmatic and good politics. Conservative skeptics and representatives of states that are still dependent on the dwindling manufacturing sector can take comfort in the fact that investment in energy infrastructure will reduce our reliance on foreign oil, curb inflation, and improve the outlook on economic growth while simultaneously decreasing carbon emissions.

This economic approach will need to focus on improving production efficiency. The [Joint Statement on the Path to Climate Sustainability](#), released by the Global Roundtable on Climate Change ("GROCC"), presents a broad array of goals cooperating with allies in both the public and private sectors to work to achieve energy production efficiency. Various industries—particularly the power generation, transportation, manufacturing, and service sectors—contribute to pollution, and any solution will need to include economy-wide participation. Their joint statement reports, "There will be no single solution—many changes in energy efficiency and energy technology will play a role. Moreover, no single economic sector or group of countries can solve the problem alone." The GROCC is optimistic because lowered carbon dioxide levels are a function of increased energy efficiency (lower energy requirement per unit of output) coupled with "de-carbonization" (decreased carbon emissions per unit of energy). The next President would likely gain broad political support with this approach by achieving positive environmental results at minimal cost to business. With increased technology, many of the initial costs of adopting energy efficient practices would be recuperated in the long run.

With this in mind, the next President should support binding emissions levels and implement a “cap and trade” system that encourages U.S. businesses to mitigate future damage, adapt to unavoidable consequences, and preserve forests within the United States and around the world. In the Environmental Protection Agency’s market-based cap and trade [proposal](#), the government would set a maximum carbon output level for the entire country. It would then issue initial credits to provide industries with a carbon allowance based on their historical carbon output. If a business had more carbon credits than it needed, it could sell its remaining credits to another business that needed more. Companies lacking carbon credits would either buy more or choose to invest in more efficient technologies, whichever is cheaper. [According to the EPA](#),

[a]llowance trading enables sources to design their own compliance strategy based on their individual circumstances while still achieving the overall emissions reductions required by the cap. Affected units can tailor their compliance plans to each source. Compliance strategies in well-designed cap and trade programs require no prior approval, allowing sources to respond quickly to market conditions and government regulators to remain focused on results.

Such a program would likely receive widespread support across industries. Environmental groups would be able to buy credits to reduce the number available to other organizations, and businesses would rely on a carbon market instead of alternative carbon taxes or regulations.

CONCLUSION

In many ways, whoever is fortunate (or unfortunate) enough to inherit the presidency will have an easier time implementing climate change initiatives than any prior President. The next President will be entering the Oval Office with broader support in the international and domestic arenas than before, and he will have multiple options to succeed. The only thing that stands in the way at this point would be an unwillingness to proceed. Since both Senators Obama and McCain have acknowledged the immense risks of global climate change, voters can have confidence in the next President’s commitment to working to solve the crisis.