Combating Global Climate Change in the United States: A Local Approach to a Global Problem

maureen atwell, University of Wisconsin - Madison

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by Maureen Atwell*

Abstract: Global climate change is a growing concern throughout the world, with the United States arguably having more power than any other country to either contribute to or eradicate the problem. The United States produces an estimated twenty-five percent of the world’s greenhouse gases, despite having only five percent of the world’s population. Given that the United States is the world’s largest producer of greenhouse gases, any effort in the United States to control the production of greenhouse gases could potentially have a huge impact on the global climate change problem.

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Introduction

Global climate change is a growing concern throughout the world, with the United States arguably having more power than any other country to either contribute to or eradicate the problem. The United States produces an estimated twenty five percent of the world’s greenhouse gases, despite having only five percent of the world’s population.¹ “Greenhouse gases” are chemical compounds that trap heat in the earth’s atmosphere, leading to an increase in global temperature and thus causing global climate change.² Given that the United States is the world’s largest producer of greenhouse gases³, any effort in the United States to control the production of greenhouse gases could potentially have a huge impact on the global climate change problem.

Unfortunately, the U.S. government has consistently declined to join international efforts to curb greenhouse gases.⁴ In the most striking example of non-compliance, the United States under the Bush administration refused to ratify the Kyoto Protocol.⁵ The Kyoto Protocol is the first international instrument that would make global warming action mandatory, and has been

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⁴ See, e.g., Global Warming Treaty Accepted, Every Nation but the United States Agrees to the Environmental Rules, Advancing Ratification of the Kyoto Protocol, Contra Costa Times, July 24, 2001.

⁵ Bush Will Continue to Oppose Kyoto Pact on Global Warming by David E. Sanger, The New York Times, June 12, 2001, Section A; Column 1; Foreign Desk; Pg. 1.
ratified by almost every country in the world. However, President Bush refused to ratify the Protocol because the United States would be held to stricter environmental standards than China and India, and he feared that the Protocol would prove “economically crippling” to the U.S. economy.

The problems surrounding the ratification of the Kyoto Protocol illustrate the difficulty of addressing global warming through international law. Because countries have no obligation to ratify international laws, some of the worst offenders can simply opt out of efforts to combat global climate change. For this reason, this article argues that the best hope for action in the United States is through the efforts of lawmakers on municipal and state levels. The United States government is accountable to the citizens of the United States, and if enough effort is made on local levels to combat global warming, the federal government must follow suit. Additionally, as individual citizens, cities, and states take action against global warming, it is likely to become profitable for U.S. businesses and industries to act against global warming. With both businesses and citizens pushing for action against global climate change, it seems extremely unlikely that the federal government could continue to ignore the issue. In addition, if enough individuals, cities, states and businesses fight against global climate change, it will be unnecessary to rely on the federal government to make changes.

Small governments have the benefit of being able to pass laws relatively easily. A town of ten thousand people may be able to pass an ordinance to ban a certain type of chemical or pollutant within a month. A larger city like Los Angeles might need six months to pass a similar ban, and the federal government might need several years to pass the same ban. On the international level, a similar ban could take decades to pass, if it were possible to pass it at all.

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7 Supra note 5.
However, if the vast majority of cities and towns in the United States pass a ban on a certain type of pollutant, it has the same effect as if the federal government had passed the ban, making federal action unnecessary.

In addition to being able to move quicker, small governments are also less likely to be influenced by business and industry than larger governments. There is simply more transparency and therefore accountability in smaller governments. For instance, if a town of ten thousand people decided to place a ban on Prilosec, it is unlikely that Proctor & Gamble would send representatives to lobby against the ban in that town. Even if Proctor & Gamble did send its representatives, it is unlikely that lawmakers in that town would pass a law contrary to what its citizens wanted. On the other hand, lawmakers at the state level are more likely to be influenced by lobbyists because it is less obvious to the general public that the lawmakers are acting contrary to what the public wants. On the federal level, lawmakers are arguably completely influenced by lobbyists.

With the belief that local laws are the most effective way of combating greenhouse gas emissions in the United States, this article will evaluate local action in the United States aimed at combating global climate change. This article will mainly focus on action that local governments can take to reduce greenhouse gases. However, recognizing that individuals can also make a tremendous impact on the problem, this article will also include a short section on action that individuals can take to combat global climate change.

Part I – Paper or Plastic?

Plastic bags seem like an unlikely culprit in the global climate change arena. The plastic bags themselves do not emit greenhouse gases, so how could they possibly be contributing to the global climate change problem? However, according to the Worldwatch Institute, an
organization that compiles information about global climate change, plastic bags are made from “crude oil, natural gas, or other petrochemical derivatives, which are transformed into chains of hydrogen and carbon molecules known as polymers or polymer resin.”\(^8\) Not only does this process release harmful gases into the atmosphere, but it takes approximately 430,000 gallons of crude oil to make 100 million plastic bags.\(^9\) While 100 million plastic bags may seem like a very large amount of bags, Worldwatch estimates that factories around the world produce an average of four to five \textit{trillion} plastic bags per year.\(^{10}\) Additionally, each plastic bag takes an estimated one thousand years to decompose.\(^{11}\)

Shoppers in San Francisco use approximately 180 million plastic bags per year, and in 2007 San Francisco became the first city in the United States to ban plastic bags.\(^{12}\) Although some consumers and most grocers initially objected to the ban,\(^{13}\) the majority of San Franciscans express satisfaction with the new law.\(^{14}\) Following San Francisco’s lead, many cities across the United States are banning plastic bags.\(^{15}\) In addition, many major grocery stores, such as Whole Foods, have also begun following San Francisco’s lead and are no longer offering plastic bags to their customers.\(^{16}\) Finally, entire countries have banned the use of plastic bags, including China,

\(^8\) WorldWatch Institute, \textit{Good Stuff? - Plastic Bags}, available at \url{http://www.worldwatch.org/node/1499}.

\(^9\) Id.

\(^10\) Id.

\(^11\) Id.


\(^14\) Id.

\(^15\) Id.

\(^16\) Id.
Bangladesh, Kenya, Zanzibar, Uganda, Rwanda, and Tanzania.\textsuperscript{17} Other countries, such as Ireland, Israel and Germany, have a tax on plastic bags.\textsuperscript{18}

The movement against plastic bags is a good example of how municipal governments can effect change throughout the country, and even on a global level. While it seems highly unlikely that our federal government would ban plastic bags, it seems quite likely that many cities will follow San Francisco’s lead in banning plastic bags, thus making a difference toward global climate change.

Part II – New Building Construction

As with many issues relating to the environment, California is on the forefront of “green” building construction by requiring newly constructed buildings to meet rigorous environmental standards. For example, the Los Angeles City Council has passed strict ordinances requiring builders to use recycled materials and install energy efficient utilities, insulation and siding in new houses and offices.\textsuperscript{19} Not only will the builders be required to make homes and offices more energy efficient, they will be required to make the very process of building the home or office more efficient.\textsuperscript{20}

California is also attempting to makes homes more energy efficient by expanding the use of solar power. First, the state is offering rebates to businesses and homeowners who install

\textsuperscript{17} Id.

\textsuperscript{18} Id.


\textsuperscript{20} Id.
solar panels in their homes or offices.\textsuperscript{21} California lawmakers are also working with local power companies to find ways to make solar power an attractive option for consumers, namely by saving the consumers money.\textsuperscript{22} Finally, California has implemented a plan where consumers can lease solar panels instead of having to buy them, which will make solar power cheaper than traditional, fossil-fuel derived electric power.\textsuperscript{23} In the past, the panels were so expensive to buy and install that it actually cost more to use solar power than traditional power, but the new leasing plan will change that.\textsuperscript{24}

Part III – Wind Power and Sea Power

Many local governments have begun investing in wind power and ocean power as an alternative to fossil-fuel derived electricity. Although these sources can be problematic, they are clean, completely renewable, and produce no greenhouse gases. Additionally, they are likely to become less problematic as they become more popular.

Wind power works through the use of wind turbines, the most common of which have three arms and operate similarly to a traditional windmill.\textsuperscript{25} The wind turns the arms, which are connected to an electric generator, which are in turn connected to a utility grid.\textsuperscript{26} The power generated by wind is cheap, simple and completely free of greenhouse gases. However, there are several problems associated with wind power. One major problem is that no power is generated

\textsuperscript{21} N. California Surging Ahead on Solar Power; SDG&E Says New Rates Should Boost Use Here, by Bruce V. Bigelow, The San Diego Union-Tribune, May 4, 2008, Pg. C-1

\textsuperscript{22} Id.


\textsuperscript{24} Id.


\textsuperscript{26} Id.
if the wind does not blow, making wind a somewhat unpredictable power source. Additionally, areas of high wind volume tend to be located in sparsely populated areas in the Midwest whereas urban, costal areas have the highest power demands. This means that the power must be transported long distances to urban areas. Also, many people object to the way the turbines look and don’t want them built within view of their houses, leading to widespread community resistance. Finally, birds and bats can get killed if they fly into the turbines, which has raised concern among animal rights activists and bird lovers.

As with many alternative energy solutions, the federal government does not provide incentives for home and business owners to use and develop wind power. However, many states have begun funding the development of wind power and offering residents tax incentives to use wind power. This is another example of local or state governments taking the initiative where the federal government fails.

Two forms of ocean power, known as “tidal energy” and “wave energy,” work in much the same way as wind power. Tidal energy utilizes underwater dams to harness the energy from changing tides, where wave energy utilizes underwater turbines to harness the power of waves. Unfortunately, tidal energy has been associated with disruption of wetland ecosystems, and

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27 Move Over, Oil, There’s Money In Texas Wind, by Clifford Krauss, The New York Times, February 23, 2008, Section A; Column 0; Business/Financial Desk; Pg. 1

28 Id.

29 Id.

30 Technology Smoothes the Way for Home Wind-Power Turbines, by John Casey, The New York Times April 15, 2008, Section F; Column 0; Science Desk; Pg. 3.

31 Id.


wave power is ineffective,\textsuperscript{34} making both of these technologies impractical, at least for the immediate future.

Part IV – Recycling Options

Although garbage itself may not contribute significantly to global climate change, the production of new goods often does. A single household recycling half of its waste can save twenty four hundred pounds of carbon dioxide per year.\textsuperscript{35} Mandatory recycling laws are becoming the norm in most cities\textsuperscript{36}, and this is yet another area where local governments have taken action that the federal government failed to take. In 2005 alone, seventy nine million tons of waste were recycled in the United States, and this number does not take into account recycled construction waste.\textsuperscript{37}

While mandatory recycling laws have been in existence for many years, some cities and states are finding more creative methods of encouraging their citizens to recycle. For instance, a program known as RecycleBank has been implemented in cities and towns across the United States.\textsuperscript{38} RecycleBank provides customers with special recycling bins that are imbedded with an electronic chip.\textsuperscript{39} When the recycling truck picks the bin up, it scans the chip and weighs the bin, then gives the owner “RecycleBank Dollars” according to how much the household is

\textsuperscript{34} Wave Power - energy from the wind on the sea, available at http://www.darvill.clara.net/altenerg/wave.htm.


\textsuperscript{37} Id.

\textsuperscript{38} Many Seek Recycling Rewards: A Program That Tracks Recyclables and Offers Redeemable Points Draws Interest, by Chet Mullin, Omaha World-Herald, May 3, 2008, Pg. 03D.

\textsuperscript{39} Id.
The household can then redeem the RecycleBank Dollars for gift certificates and coupons.\textsuperscript{41}

While this type of incentive program is both creative and effective, it seems highly unlikely that anything of this sort could be implemented on an international level, or even on a federal level. This article has so far illustrated ways in which locals governments can take action when the federal government simply won’t take action. However, the recycling credits example is a good illustration of local governments being able to take action in ways that the federal government can’t take action. It seems infeasible for the federal government to offer quantitative credits to individual households for recycling, whereas it is quite easy for local governments to do so. This emphasizes even further the role that local governments can play in combating global climate change.

Part V – Sustainable Development on a Local Scale

“Sustainable development” is development that meets the needs of the current generation while also preserving the environment for future generations.\textsuperscript{42} Sustainable development is an important issue in the international fight against global climate change, and one that has been much discussed. However, sustainable development is also important on the local level, and arguably far more easily implemented than on the international level.

The United States is known for its sprawling suburbs, and this lifestyle has been blamed for everything from heart disease to high amounts of greenhouse gases.\textsuperscript{43} Most Americans live

\textsuperscript{40} Id.

\textsuperscript{41} Id.


\textsuperscript{43} The Urban Land Institute Report: Sprawl causes global warming UPI September 20, 2007.
outside of city centers, so they must commute a substantial distance to get to work, school, or even a grocery store. This means that each American drives an average of twelve thousand miles per year and generates 7.8 tons of carbon dioxide per year. Because auto emissions are responsible for a third of the greenhouse gases in the United States, urban and suburban development patterns have the potential to make a huge impact on the amount of greenhouse gases the United States produces.

Developers and urban planners have begun building “low carbon footprint” communities where homes, businesses and shopping centers are all within walking distance or a very short bus ride of each other. The housing in these communities are typically apartment buildings as opposed to single-family houses, which saves energy through shared walls and smaller spaces. In addition to being built to encourage walking, these communities typically have bicycle lanes and a network of buses that residents can take in inclement weather or if they don’t feel like walking.

The fact that the United States produces a substantial portion of greenhouse gases and yet has a smaller population than many less-offending countries can at least partially be attributed to the design of our communities. Although people who have never visited the United States may think Americans are simply lazy and should ride their bikes more often, it is often quite infeasible for people to do so. Many Americans work more than twenty miles from where they

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live, which makes walking or bicycling to work difficult if not impossible. Additionally, many American cities are designed without sidewalks, making even a mile-long walk difficult and dangerous.

To highlight how important urban planning can be in the fight against global climate change, it is estimated that a person living in Dallas uses three times as much electricity as a person living in New York City.\textsuperscript{48} New York City, with its tiny apartment spaces and heavy reliance on public transportation, produces 7.1 metric tons of greenhouse gases per person per year, as compared to the average American city, which produces 24.5 metric tons per person per year.\textsuperscript{49}

As awareness of global climate change increases in our country, proper urban planning could dramatically improve our greenhouse gas emissions.

Part VI – Innovations in Public Transportation

Cities in the United States have largely been built to accommodate cars, and thus are often lacking in public transportation systems. Adequate public transportation systems could go far toward reducing the amount of cars on the road, thereby reducing greenhouse gases, and many cities are beginning to address this issue.

Unfortunately, the process of building a public transportation system is extremely difficult once a city has already been built to accommodate cars. Installing a subway system requires uprooting an entire city infrastructure, complete with gas lines, sewage systems, and drainage pipes. Businesses and residents are often displaced in the process, and there is often

\textsuperscript{48} Because a Person Moving From a Farm to Midtown Would Actually Reduce His Carbon Footprint; Now that the mayor has done his best to purge New York City of murder, smoking, and trans fats, he’s turned his attention to another nuisance: catastrophic climate change, by Justin Davidson, New York Magazine December 24, 2007.

\textsuperscript{49} Id.
strong community opposition to the new system. Building new transportation systems is also extremely expensive. The cost to build a subway is $200-300 million per mile, while the cost to build a light rail system is $30-50 million per mile.  

Possibly the most feasible public transportation alternative in most cities is buses. However, buses are notoriously slow because they need to navigate city traffic while also stopping often enough for riders to get on and off the bus near their destinations. As an example, buses in New York City travel an average of four miles per hour, which is just slightly faster than an average person’s walking speed. However, city planners and engineers are working on methods to make buses faster and therefore more attractive to city residents.

One option for improving bus speed is to create a designated lane that only buses can use. Although many cities have a so-called “designated bus lane,” the effectiveness of the lane depends on how strictly the city enforces it. Because enforcing the lane requires the expense of traffic police, some cities are now experimenting with a barrier that would prevent cars from using the bus lane.

Other cities are experimenting with “bus bulbs,” bulb-shaped concrete sidewalk extensions that allow buses to pick up pedestrians without having to pull out of and back into traffic. However, like designated bus lanes, bus bulbs require enforcement to keep cars from blocking the lane.

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50 A Los Angeles Program May Have Something to Teach New York; Getting Buses to Crawl a Little Faster, by Sewell Chan, The New York Times, March 30, 2005, Section B; Column 2; Metropolitan Desk; Pg. 1.

51 Id.


Finally, many cities are replacing older, traditional buses with newer buses that ride low to the ground and therefore do not require riders to climb steps in order to get on the bus. According to expert, this will reduce “dwell time” and make the buses run substantially faster.

Although public transportation has not been the most popular form of transportation for Americans in the past, the rising cost of gasoline is already leading to an increase in riders across the country. Some cities are experiencing dramatic increases, such as Charlotte, North Carolina, which saw a 34% increase in ridership on its light rail system.

With this renewed interest in public transportation, local governments are likely to invest more time and resources into their public transportation systems. With enough demand, it is possible that the federal government could provide additional funding for local public transportation systems.

Part VII – Hydrogen Fueling Stations

Fossil-fuel burning vehicles produce the majority of greenhouse gases in the United States, and until recently the general public in the United States did not show an interest in driving any other type of vehicle. However, with raising awareness of global climate change and skyrocketing gasoline prices, the general public is beginning to demand alternative fuels. It is likely that the higher gas prices go, the more interested the public will be in vehicles that use alternative fuels.

54 Supra note 50.
55 Id.
57 Id.
58 Id.
59 West, supra note 35.
Hydrogen powered vehicles emit no greenhouse gases, and in fact emit no pollutants whatsoever.\textsuperscript{60} However, hydrogen-powered vehicles require re-fueling just like traditional vehicles, and there are currently very few hydrogen-fueling stations in the United States.\textsuperscript{61} For hydrogen fuel-cell vehicles to become a reality, states would have to create a system of fueling stations for the vehicles.

Unlike many of the other proposed solutions in this article, hydrogen fuel cells have received substantial support from the federal government. In 2003, President Bush pledged $1.7 billion for the development of hydrogen technology.\textsuperscript{62} Unfortunately, the Bush administration’s plan calls to extract the hydrogen using non-renewable resources, oil, natural gas and other fossil fuels.\textsuperscript{63} Given this plan, the benefits of converting to hydrogen powered vehicles is questionable.

Part VIII – The Individual Contribution

The purpose of this article is to address the international problem of global climate change. Logically, the best way to do this is by analyzing how various international laws and international bodies can address the problem. However, this article strives to make the argument that local government action is more likely to make changes in the global community than international action, particularly in the United States.


\textsuperscript{63} Id.
The foundation of this argument is that the United States is the largest producer of greenhouse gases, therefore anything that reduces greenhouse gas emissions in the United States is an effective tool against climate change on a global level.

To expand on that argument, the actions of businesses and individuals are arguably just as important as the actions of local governments in the fight against global climate change. Individuals are responsible for producing greenhouse gases, and individuals have the power to change their behavior. While laws aimed at reducing greenhouse gases are a powerful solution to the problem of global climate change, it is ultimately individuals who are polluting the environment, and individuals who can stop polluting the environment. Under that framework, below is a short analysis of three actions that individuals can take that have a significant impact on the production of greenhouse gases in the United States.

a. Use energy efficient appliances and light bulbs. If even ten percent of homes in the United States used energy efficient appliances, the effect would be the equivalent of planting 1.7 million acres of new trees.64 If every homeowner in the United States replaced a single light bulb with a compact fluorescent bulb, we could prevent greenhouse gas emissions in the equivalent of more than 800,000 cars.65

b. Install effective home insulation. Heating and cooling can account for up to seventy percent of a home’s energy use, and using effective insulation is the key to lowering energy usage.66

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65 Id.
c. Drive more fuel efficient vehicles. As the cost of gasoline continues to escalate, Americans are likely to switch to smaller, more fuel efficient cars. Hybrid cars are also a viable choice and can save in fuel costs as well as greenhouse gas emissions.

Conclusion

As global climate change becomes a growing concern, it is important to take action to prevent the production of greenhouse gases before the damage to the environment is done. Because international bodies are often slow to act, it is important for individual countries to take as much action toward curbing greenhouse gases as possible. However, while the United States is the world’s largest producer of greenhouse gases, the federal government has been slow to act and resistant to adopt measures to control the problem. Local governments, on the other hand, have the power to pass laws and effect changes that will substantially reduce greenhouse gas production. Local governments also have the ability to pass laws quickly, making them the ideal leaders in the fight against global climate change.