Factors Affecting States' Ranking on the *2007 Forbes List of America's Greenest States*

By

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Abstract

The purpose of this study is to evaluate factors influencing states' ranking on the *2007 Forbes List of America's Greenest States*.[1] Scholarly literature supports four factors that influence a state's ranking on the *Forbes List*. These four factors are per capita expenditures on environmental programs, energy efficiency, level of liberalism, and political culture. The methodology used to determine the effects of these four factors on states' ranking on the *Forbes List* was analysis of existing data and a multiple regression analysis. The results of the study show that only energy efficiency affected states' ranking on the *Forbes List*. The relationship between energy efficiency and a state's ranking was positive. In conclusion, this research study is helpful in guiding researchers, administrators, and politicians by illustrating what factors do and do not affect states' ranking on the *2007 Forbes List of America's Greenest States*, as well as what steps states may or may not be taking with respect to pro-environmental policy.

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[1] *Forbes* is an American publishing and media company. Its flagship publication, *Forbes* magazine, is published bi-weekly. The magazine is well-known for its lists, including its lists of the richest Americans (the Forbes 400) and its list of billionaires. See its site for more information, http://www.forbes.com/.

About the Author

Erin C. Tresner is a graduate of Texas Christian University in Fort Worth, Texas. She earned a Bachelor of Arts degree in Political Science with an emphasis in International Relations in August 2005. Her interest in environmental policy stems from her employment with State Representative G. E. "Buddy" West, whom she was employed with soon after graduation from TCU until his death in late 2008. He served as Chairman of the Energy Resources Committee for several of his terms, and was an influential member of the Texas House in energy policy for 16 years. Erin is now the Field Manager for the Permian Basin region of the Ronald McDonald House Charities of the Southwest, Inc. She can be reached by e-mail at erintresner@yahoo.com.

This is a photo of Erin receiving a $1,000 check on behalf of the Ronald McDonald House Charities of the Southwest. Erin is second from left.

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Epigraph

"The era we are heading into will be an era in which our lives, our ecosystems, our economies, and our political choices will be constrained if we do not find a cleaner way to power our future and a better way to protect our natural world."

~Thomas Friedman (2008)

Chapter 1
Introduction

Kermit the Frog's proclamation, "It ain't easy being 'green,'" summarizes many states' progress initiating and implementing environmental programs. While some states have made great strides toward lowering their carbon footprint, ramping up their hazardous waste management, or focusing on air quality standards, others are just getting started, and some still lag behind.[2] The energetic days of the 1970s environmental movement seem to be over (Greenberg 2004; Downs 1972). During the 1970s, the media provided coverage, rallies were common, and "there was a spiritual-like moral fervor about environmental protection"(Greenberg 2004, 124). The 1970s energy crisis also demonstrated the need for a new paradigm in construction based upon the responsible use of energy resources.[3] The increased oil prices focused more attention on the suburban pattern of development taking place in urban areas and our dependence on inexpensive oil (Jones 1998). This initiative lost impetus once fuel prices returned to low levels, but has since regained its popularity in "light of concerns over global warming, rising fuel costs and anxiety about energy independence" (Sparks 2007, 13). With this renewed interest came development of new institutions and new programs targeting "green" innovation and environmental concern.

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[2] For examples of other Texas State Applied Research projects (ARPs) that deal with environmental policy issues, see Albright 2006, Batts 2005, Ellis 2006, Gillfillan 2008, Spacek 2004, Sparks 2007 and Reed 2009.
[3] For an ARP that deals specifically with green housing, see Sparks 2007.

figure 1.1

"It's either a global warming trend or merely a fad."

Environmental concern certainly does wax and wane. The ebb and flow of environmental concern begs the question as to just how dedicated the American people are towards the environmental movement. Anthony Downs (1972) argued that, "American public attention rarely remains sharply focused upon any domestic issue for very long, even if it involves a continuing problem of crucial importance to society" (Downs 1972, 38). Regulatory agencies and laws designed to solve imminent problems often lead the public to assume that the issue is being remedied by government regulations and actions (Kuzmiak 1991; Downs 1972). This thinking is said to have contributed to the diminished salience of environmental problems in the late 1970s (Kuzmiak 1991; Downs 1972). Fortunately, the endurance of the American public's commitment to environmental protection since 1970 has survived despite the expenditure of sizeable amounts of money and effort and in the face of energy crises, economic hard times, and an antiregulatory climate (Kuzmiak 1991). This persistence is a strong indication that the American people place a high priority on environmental quality.

When the United States provides leadership on the environment, it bolsters efforts to address environmental problems on a global scale (Sussman 2004). Yet sometimes, regardless of the American public's commitment, progress on environmental policy has

been constrained by partisanship in the Congress or in the White House. Powerful

domestic organized interests have often used their resources in an effort to influence

environmental policy.[4] Partisanship among members of Congress has had a direct impact

on US environmental policymaking, both domestically and globally (Sussman 2004;

Kuzmiak 1991). The gap between Democrats and Republicans for voting on

environmental issues is "substantial and has actually increased in recent years" (Sussman

2004, 358). During the past three decades, Democratic legislators both in the House and

in the Senate voted "green" more often than their Republican counterparts (Sussman

2004, 358).

Therefore, it can be assumed that the discrepancies between administrations on

environmental policy at the Federal level affect the abilities of other levels of government

to tackle environmental issues. With states bearing more of the burden to implement and

fund domestic environmental issues, the Federal government's views on the environment

play a crucial role in state environmental concerns and policy.[5] There is no doubt that

various other factors play roles in determining environmental policy in the states, yet the

states still count on the Federal government for guidance and direction when it comes to

policies affecting the environment.

Today, global consciousness seems to have more strongly than ever embraced the

need for environmental programs and policies. Americans are demanding cleaner,

"greener" technologies in almost everything they consume and produce. Manufacturers

are marketing products such as biodegradable plastic garbage bags, 'ozone friendly' hair

styling mousse, "safe for the ozone layer" deodorant, and even cleaner burning fuels that

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[4] See, for example, Sussman 2004; Kuzmiak 1991; and Dunlap 1991.
[5] See, for example, Welborn 1988; Jacoby and Schneider 2001; Graham 1998; and Brown 2008.

can be used in homes and cars to reduce emissions and energy consumption (Kuzmiak 1991; Clean Energy Review 2009).

With the election of a new Democratic president and administration, as well as a Democratic Congress, a focus on the environment is expected to take a more central role in policymaking.   A popular president has the ability to stimulate significant change in US lifestyles, as well as to promote pro-environmental policies in general (Dunlap 1991). Thus, effective leadership helps to establish new social norms that stress environmental protection (Dunlap 1991). There is no doubt that the challenges America faces in the next decade are many. Building public trust for policies on the environment is likely to be among the top initiatives of the leaders in this country.

figure 1.2

Obama's gray hair

Kurtzman, Daniel. 2009. "About.com: Political Humor—Barack Obama Cartoons." http://politicalhumor.about.com/od/barackobama/ig/Barack-Obama-Cartoons/. (Accessed April 8, 2009).

Introduction to the *2007 Forbes List of America's Greenest States*

The capacities of state governments to tackle the issue of environmental awareness and protection have expanded to meet the challenges facing them. The *2007*

Forbes List of America's Greenest States ranks each state's status in following existing environmental standards as well as adopting new green programs and policy (Wingfield and Marcus 2007). States are ranked in six equally weighted categories and given a total score based on the weights. The six categories encompass the state's impact on "carbon footprint, air quality, water quality, hazardous waste management, policy initiatives and energy consumption" (Wingfield and Marcus 2007, 2).

There are many factors that affect states' rankings in each of the six categories and subsequent total score on the index. Potoski and Woods (2002) define green programs as those that provide "more stringent environmental protections"(209). Thus, similar to the studies done by Potoski and Woods (2002), the strategy in these studies is to determine which independent variables most effectively account for the variance in states' environmental policy greenness.

Research Purpose

The purpose of this research is to examine factors influencing states' commitments to environmental programs and policies. The literature review discusses the policy history and factors that affect the likelihood that a state will focus attention on environmental policy, as well as develop new green policies. A state's per capita expenditures on environmental programs, level of energy efficiency, level of liberalism, and political culture are factors that are examined and reviewed as possible determinants of states' commitments to being green. The literature review helped in development of four hypotheses that identify factors, which influence a state's ranking on the *2007 Forbes List of America's Greenest States*.

Chapter Summaries

       This ARP is divided into six chapters. Chapter 2, "Policy Setting," provides information about the history of environmental policy, the modern environmental movement, environmental policy during the Twenty-First Century, the role of federal and state government environmental relations, the pressures facing states that engage in environmental consciousness, the environmental issues that define green, the *2007 Forbes list of America's Greenest States*, and factors that in turn affect states' ranking on the list. Chapter 3, "Literature Review," evaluates scholarly literature that identifies factors influencing states' commitments to green policies and their subsequent ranking on the *2007 Forbes List of America's Greenest States*. This chapter also develops the hypotheses used in the research project. Chapter 4, "Methodology," describes the procedures used to collect the data for this study, as well as an operationalization of the conceptual framework. Chapter 5, "Results," presents the results and findings of this research project. Finally, Chapter 6, "Conclusions," wraps up the study by summarizing the paper and the research findings.

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Chapter 2
Policy Setting

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Policy History: The Beginning

   The modern history of environmental policy in the United States begins with

Theodore Roosevelt, who had been fascinated by nature and the outdoors from

childhood. This American president, who was an avid roughriding outdoorsman and

naturalist, "did more than any man occupying the White House before him to elevate

environmental issues to the national level" (Kuzmiak 1991, 269). He understood the

issue of conservation and its connection to national affairs. During Roosevelt's

administration the word *conservation* came into official use at a time when there was not

enough reforestation, when vast quantities of topsoil were being washed into the sea,

lakes and rivers were being polluted by mining operations, and the Carolina paroquet and

heath hen were nearly extinct (Kuzmiak 1991). Between 1903 and 1909, Roosevelt

created a total of fifty-one wildlife refuges and five additional national parks. During his

term in office Congress passed the National Monuments Act, "allowing a U.S. President

to declare, at his discretion, sites on government land as being of historic or scientific

interest and in need of preservation" (Kuzmiak 1991, 269).

figure 2.3

"PROTECT AND PRESERVE THE REMAINING FORESTS UPON PUBLIC LANDS FROM DEVASTATION AND DESTRUCTION, WHICH HAVE BEEN THE FATE OF THOSE IN FOREST SECTIONS OF THE COUNTRY."

A PRACTICAL FORESTER
(A subject that had attention all through Mr. Roosevelt's Presidency.)
From the *Pioneer Press* (St. Paul)

Rehse, George W. 1905. *A Practical Forester*. http:// www.pro.corbis.com. (Accessed April 6, 2009).

Roosevelt's initiatives also encouraged others interested in pursuing environmental concerns. President Franklin D. Roosevelt was concerned with the conservation of "all natural resources of the nation" (Kuzmiak 1991, 270). Like Theodore Roosevelt before him, he was troubled by the devastation of forests, the destruction of soils, and the needless deterioration of great scenic and wilderness areas across the United States. President Franklin Roosevelt wanted to coordinate all aspects of conservation while also tackling the Great Depression, massive unemployment, farming, and erosion problems. During his administration, the creation of the Civilian Conservation Corps, the US Fish and Wildlife Service, the Tennessee Valley Authority (to stem floods in a seven state region of the South), and even the Farm Securities Administration were attempts at boosting the US environmental program (Kuzmiak 1991).

History of Modern Environmental Consciousness

  Social activism of the 1950s was largely attributed to the work of David Brower and the Sierra Club (Kuzmiak 1991). They spoke out against the Eisenhower administration's "Mission 66," which directed the National Park Service to develop road and service infrastructures in the wilderness (Kuzmiak 1991). During the 1960s, marine expert Rachel Carson, credited with making *ecology* a household word, was writing the book, *Silent Spring* (1962), which explored the effects of exposure to the pesticide, DDT or (**d**ichloro-**d**iphenyl-**t**richloroethaneon) on humans, animals, and the environment.[6] Carson believed, "Like the resource it seeks to protect, wildlife conservation must be dynamic, changing as conditions change, seeking always to become more effective" (Lewis 2009). Carson warned in her groundbreaking book that a postwar America—a country confident that science and technology were leading the way in which disease and hunger could be overcome thanks to a new generation of powerful pesticides—came with a price (Johnson 2007).

  While working for the Federal Bureau of Fisheries (later re-named the Fish and Wildlife Service), Carson saw evidence that pesticides, particularly DDT, were killing birds and other wildlife (Johnson 2007). After reading her book, President John F. Kennedy appointed an independent commission to investigate her claims, which all proved to be true based on the commission report (Johnson 2007). DDT was banned in 1972, and her work is said to have contributed to the creation of the Environmental Protection Agency. Carson's crusade against pesticides may have forever changed the way Americans view their environment. She is known as a "pioneer who inspired a generation of activists" (Johnson 2007). *Silent Spring* is also argued to have

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[6] See for example, Kuzmiak 1991; Lewis 2009; and Johnson 2007.

"foreshadowed the debate over global warming, clean energy, and organic food"
(Johnson 2007).

Kennedy Administration

On the national level, President Kennedy's New Frontier policy was extended to include the issue of ecology. Perhaps Kennedy's greatest contribution to the conservation movement was the appointment of Stewart L. Udall as Secretary of the Interior. Udall was personally dedicated to conservation efforts and "fought with Congress for bigger budgets and appropriations for new investments in National Parks, monuments, and recreational areas" (Kuzmiak 1991, 270). He understood the importance of balancing outdoor facilities against the environment's fragilities. Secretary Udall stressed that the concept of conservation "had to be expanded to meet the problems of the new age" (Kuzmiak 1991, 270). As mentioned earlier, John F. Kennedy was also influenced by the writings of Rachel Carson, in particular her book, *Silent Spring*. With his appointment of a commission to investigate the claims made in *Silent Spring*, a crusade against pesticides swept the nation and forever changed the way Americans viewed the environment.

figure 2.4

John F. Kennedy.
http://www.news/guelphmercury.com/article/245909.
(Accessed April 6, 2009).

LBJ Administration and the 1970s

Under the Johnson administration, environmental issues remained a priority.

Lady Bird Johnson made "Beautify America" her special cause and appealed to the

country to take down the billboards which lined many roads and to pick up trash

(Kuzmiak 1991). During this same time period, the Wilderness Act of 1964 represented

a significant accomplishment in the "preservation of an enduring resource of wilderness"

(Kuzmiak 1991, 271). At a time when oil spills were first beginning to cause alarm,

environmentally concerned groups such as the Environmental Defense Fund, Friends of

the Earth, and Environmental Action began calling on the government to stop industry

from polluting the nation's rivers, streams, and coastlines (Kuzmiak 1991). In 1968,

President Johnson signed legislation establishing the National Wild and Scenic River System, and at the end of that year Congress passed the National Environmental Policy Act (NEPA), "which mandated the Congress to radically change the process of developing natural resources" (Kuzmiak 1991, 271; Welborn 1988).

figure 2.5

Lyndon Johnson is re-elected as President of the USA. 2004.
http:// www.llgc.org.uk/illingworth/illingworth_s060.htm.

During the 1970s, concern surfaced among Americans that the planet could one day be in a state of disrepair. Gradually, more and more people were beginning to realize the immensity of the social and financial costs of cleaning up our air and water and of preserving our open spaces. Frustrated by the failure to stop the Vietnam War, growing disparities between rich and poor, the intensity of racial discrimination, and the federal government's ineptitude in responding to demonstrated incidents of hunger, disease, and insecurity, conscientious turned their attention to a problem of similar importance—the environment (Kuzmiak 1991; Downs 1972). The environment was an issue they felt more at ease in dealing with, and one they could manage with support from interested citizens and lawmakers.

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The most obvious reason for the initial rise in concern about the environment was a recent deterioration of certain easily perceived environmental conditions. A whole catalogue of problems, such as urban smog, greater proliferation of solid waste, oceanic oil spills, greater pollution of water supplies by DDT and other poisons, the threatened disappearance of many wildlife species, and the overcrowding of a variety of facilities from commuter expressways to national parks seemed to alert millions of citizens to these worsening conditions (Downs 1972). Citizens became convinced that *something* needed to be done about what was happening to the world around them.

The government responded to this outcry with the creation of the Environmental Protection Agency (EPA) to address issues of water and air pollution, insecticides, waste management, and radiation. This act signified that the environmental quality issue had come of age (Kuzmiak 1991; Welborn 1988). The government subsequently passed laws regulating the usage of air and water, stressing that these were not free dumping grounds for the country's pollutants (Kuzmiak 1991; Welborn 1988). The Clean Air Act of 1970 and the Federal Water Pollution Control Act of 1972 (later called the Clean Water Act) and its amendments identified causes and sought remedies for all categories of water pollution (Kuzmiak 1991; Welborn 1988). The Endangered Species Act of 1973 identified and protected endangered species; strip mining was condemned as environmentally unsound; sewage treatment became more important; and the 1972 ban on DDT was enacted (Kuzmimak 1991).

Nixon and Carter Administrations

Due to increasing attention from labor organizations, which were beginning to view industrial health and safety as environmental problems, President Nixon signed into

law the Occupational Safety and Health Act (OSHA) in 1970 (Kuzmiak 1991; Welborn 1988). In the middle of the decade, OSHA enforced mandatory occupational safety and health standards applicable to interstate commerce and established standard-setting procedures for handling toxic substances such as asbestos (1972), carcinogens (1974), vinyl chloride (1974), coke oven emissions (1976), benzene (1978), arsenic (1978), and lead (1978) (Kuzmiak 1991; Welborn 1988).

figure 2.6

Valtman, Edmund. Circa 1970. *Nixon.* Published in "Edmund Valtman, *Valtman: The Editorial Cartoons of Edmund S. Valtman, 1961-1991*." Baltimore, MD. http:// www.loc.gov/.../swann/valtman/presentation.html.
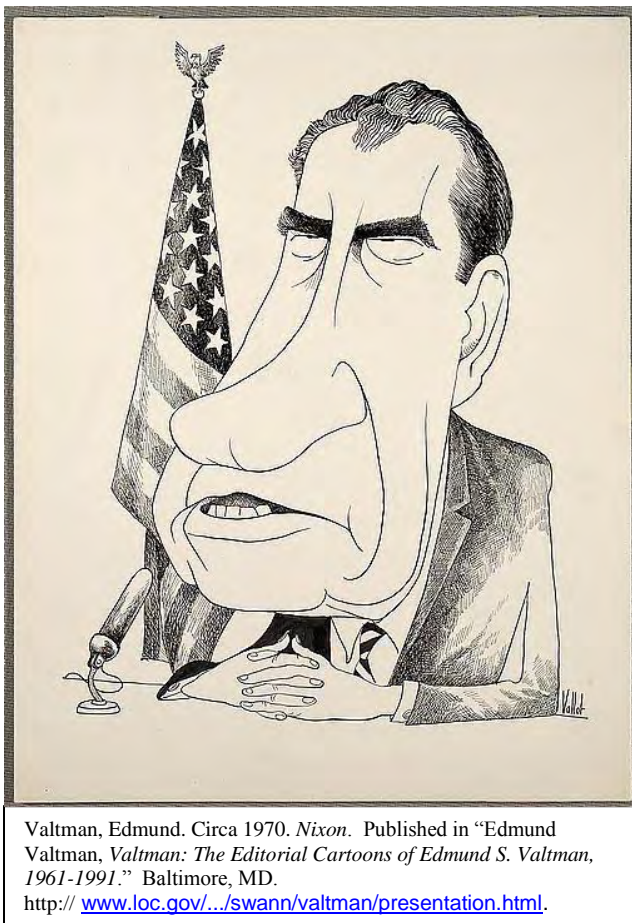
By the end of the 1970s, President Carter had installed solar panels on the White House roof, people were moving out of Love Canal, New York because of toxic seepage from decades of chemical waste disposal, and new production vehicles were being powered by lead-free petroleum (Kuzmiak 1991). By the fall of 1978, environmental leaders were very satisfied with the progress of the Carter administration. Consequently, a certain slackening of popular interest and involvement took place, as it appeared that government was overseeing environmental issues. In 1979, a proposed Energy Mobilization Board, that would have had the authority to override environmental laws, was defeated by a

coalition of environmentalists. That event caused a near complete rupture of the

relationship between Carter and environmentalists (Kuzmiak 1991).

Reagan Administration

The 1980 presidential election of Ronald Reagan began a period of great concern

by environmentalists.[7] Five new areas of environmental concern became apparent in the

1980s. These areas included hazardous air pollutants, carbon dioxide emissions, and

toxic and hazardous substances. Identified as priority pollutants, these concerns added a

new level of urgency and importance to the environmental cause.

Although the media helped to spread public concern about environmental hazards,

oil spills, and toxic dumpsites, the progressive deterioration of the EPA's credibility due

to scandal, internal mismanagement, and budget cuts that weakened environmental

regulations seemed to have reversed the conservation policies of the 1970s (Friedman

2008). Rather than continuing to increase the automobile fuel economy standard put in

place by President Carter to reduce the country's dependence on foreign oil, Reagan

rolled back those standards in 1986 (Friedman 2008). Regan also slashed the budgets of

most of President Carter's alternative energy programs, particularly the Solar Energy

Research Institute and its four regional centers. Reagan's White House and the

Democratic Congress also "teamed up to let the tax incentives for solar and wind start-

ups lapse, and several of these companies and their technologies, which were originally

funded by American taxpayers, ended up being bought by Japanese and European

firms—helping to propel those countries' renewable industries" (Friedman 2008, 14-15).

Reagan ran not only against government in general, but "against environmental

regulation in particular" (Friedman 2008, 15). He and his Secretary of the Interior, James

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[7] See, for example, Kuzmiak 1991; Dunlap 1991; and Friedman 2008.

Watt, turned environmental regulation into a much more "partisan and polarizing issue than it had ever been before" (Friedman 2008, 15). Friedman argues that it has been so ever since (Friedman 2008, 15). Yet, the environmental legacy of the Reagan years was not entirely negative. Ironically, its failures stimulated renewed public environmental concern. It may have inadvertently saved the environmental movement from a "dangerous hibernation" of the Carter years (Dunlap 1991).

figure 2.7

Spooner, John. *Ronald Reagan*. http://www.chrysalis.com.au/Artwork-Spooner-RonaldReagan-971.htm. (Accessed April 8, 2009).

George H.W. Bush and the 1990s

By the 1990s, the color green had extended to the marketplace. From the banning of tuna caught in environmentally unsound areas to the dwindling usage of Styrofoam containers, businesses began taking heed of environmental issues and telling consumers

that they were also doing their part—or at least they appeared to be. The Valdez

Principles, named after the Exxon *Valdez* oil spill, laid out a new set of criteria by which

to judge firms, and was offered as a plan by the environmentally concerned. The Valdez

Principles legitimized the idea that corporations had to be responsible for their impact on

the environment (Kuzmiak 1991).

The 1980s and 1990s continued to see a reassertion of citizenry involvement and

a revitalization of environmental groups. Stimulated by the anti-environmental approach

of the Reagan administration, the grassroots movement began and encompassed

environmental issues that extended beyond local and national boundaries (Kuzmiak

1991). People from all professions and walks of life increasingly became involved in

committees to initiate improvements and put pressure on lawmakers to increase and

sustain environmental awareness and action. With enormous amounts of enthusiasm and

energy, these defenders of the environment formed a nationwide organizing machine.

Political and social change groups increasingly got involved in committees to "isolate

dump sites, clean up waterways, start recycling projects and put pressure on

governmental representatives to increase and sustain environmental awareness and

action" (Kuzmiak 1991, 276). Green politicians and green marketing became

commonplace during the late 1980s and the 1990s (Kuzmiak 1991; Friedman 2008).

In 1989, President Bush (41) campaigned on a platform of being an

"environmental president" (Sussman 2004, 355). He at least moved the fuel economy

standard back up to the levels of President Carter's administration. The Bush (41)

administration also passed substantial improvements in building standards and new

appliance standards, introduced a production tax credit for renewable energy, and

elevated the Solar Energy Research Institute to the status of a national institution as the

National Renewable Energy Laboratory (Friedman 2008). Nevertheless, his attention to

global environmental issues proved limited and constrained as he focused his presidency

on the end of the Cold War and the war against Saddam Hussein (Sussman 2004;

Friedman 2008). By the latter part of his time in office, Bush began to feel pressure from

business and industry to back off on the environmental issue, and in the end he was

unable to do anything to liberate the nation from dependence on Middle East oil

(Sussman 2004; Friedman 2008). His best effort was when he ensured passage of the

Clean Air Act Amendments in 1990 (Sussman 2004).

figure 2.8
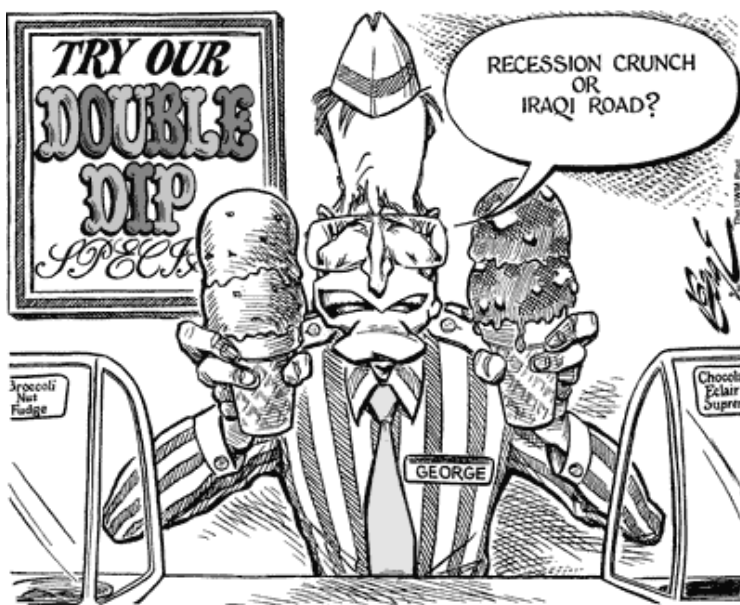
Berge, Paul. 2004. http://www.geocities.com/pwberge/archive3.html.
(Accessed April 8, 2009).

Bill Clinton chose an environmental running mate, Senator Al Gore, and together

they stressed their commitment to the domestic and global environment (Sussman 2004).

Yet Clinton's first term as president was primarily focused on the economy, healthcare,

and social justice. The "Monicagate" scandal, (and subsequent impeachment trials),

diverted his attention away from environmental issues in his second term (Sussman 2004,

355). Throughout the Clinton years, the Republican-controlled Senate was unlikely to

approve environmental obligations made by a Democratic White House (Sussman 2004).

For example, Clinton endorsed both the 1992 Biodiversity Treaty and the 1997 Kyoto

Protocol, which were later opposed by the Republican-controlled Senate (Sussman 2004).

In the end, environmentalists were generally disappointed with his administration.

figure 2.9

NOW THAT THE "NEW" POLITICS IS REALLY JUST THE SAME-OLD, SAME-OLD...

THINK ABOUT IT... I'VE ALREADY *DISCLOSED* EVERYTHING, AND WITH HILLARY OUTTA TOWN, I'M FREE TO BE *HANDS-ON*, SO TO SPEAK...

DASCHLE WITHDRAWAL
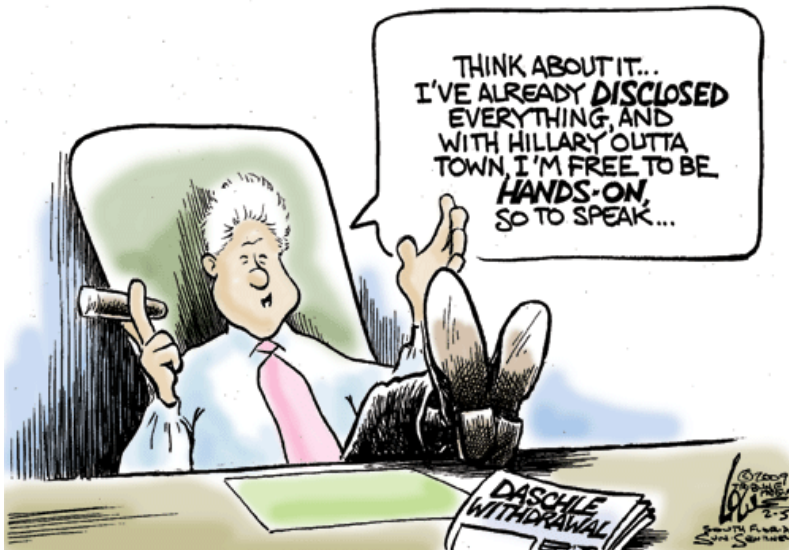
Posted by Chan Lowe. 2009. http://www.blogs.trb.com/…chanlowe/blog/bill_clinton/. (Accessed April 6, 2009).

Twenty-First Century Through Today: George W. Bush and Beyond

In 2000, **"**two-thirds of American citizens preferred environmental protection to

economic growth, and more than 70 percent of Americans had practiced some form of

pro-environmental behavior" such as recycling, using less water, or consuming less

energy (Sussman 2004, 352).   Thus, efforts to promote improvements in the environment

had a strong grounding among US citizens. Unfortunately, the terrorist attacks on

September 11, 2001 occurred only nine months into the Bush (43) presidency. One can assume that the path of the Bush administration toward an environmental initiative ended up being slightly thwarted. The ensuing wars in Afghanistan and Iraq came to define his presidency, and undoubtedly threw any notion of a strict environmental program off course.

Furthermore, as a Republican president with a Republican-controlled Congress supported by powerful business and industry groups, the Bush administration failed to demonstrate environmental leadership at home or abroad. In addition, some Bush (43) directives damaged and undercut important policies aimed at protecting the nation's air, land, and water (Sussman 2004; U.S. PIRG 2007). Possibly his biggest environmental legacies were his rejection of the Kyoto Protocol in 2001 and his "Clear Skies Initiative," which addressed the global warming issue (Sussman 2004, 363). A "voluntary rather than mandatory approach," it was to be adopted by the affected industries and was in line with the approach of the Alliance of Climate strategies, made up of representatives from the chemical, iron and steel, petroleum, and mining industries (Sussman 2004, 363; Environment America 2008).

The Bush administration's EPA proposed a marginal improvement to the air quality standards for ozone (smog). Unfortunately, the proposed standards were weaker than the EPA's scientific advisors found necessary to protect public health (Environment America 2008). Over the course of his terms in office, the Bush (43) administration "suggested, proposed, or enacted numerous policies" that chipped away at the Clean Water Act and "threatened the future of America's rivers, lakes, streams, wetlands and coastal waters" (U.S. PIRG 2007, 2). The administration not only weakened the Clean

Water Act, it also eliminated Clean Water Act protections from key waterways altogether (U.S. PIRG 2007). As a result of these policies, developers, mining companies, and other polluters, seeking exemption from the Clean Water Act, were able to argue that certain wetlands, streams, ponds, or other waters were outside the jurisdiction of the Clean Water Act (U.S. PIRG 2007). From the outset of his administration, funding cuts drastically weakened the EPA, and in turn further undermined policies to protect US air, land, and water. Between 1997 and 2006, the EPA's total budget "had declined by 13 percent," threatening its ability to effectively police polluters and protect the nation's air, water, and other key environmental resources (U.S. PIRG 2007, 15).

The Bush administration continued this trend in its 2008 budget proposal cutting funding for the EPA by more than $400 million (U.S. PIRG 2007). The bulk of the cuts were to the Clean Water Revolving Fund, "which provides low interest loans to communities who want to upgrade wastewater treatment systems, as well as support other water infrastructure projects" (U.S. PIRG 2007, 15). According to a report by the Government Accountability Office, funding for enforcement—putting cops on the beat and conducting inspections to detect violations of the Clean Water and Clean Air Acts— has continued to decline since 1997 (U.S. PIRG 2007). As a result of the funding cuts, regional enforcement staff has been reduced by nearly 5% (PIRG 2007). In addition, EPA's grants to states to implement and enforce environmental programs have decreased in real terms (between 1997 and 2006) by 9%, "with a 22 percent decline between fiscal years 2004 and 2006" (U.S. PIRG 2007, 15).

Bush rolled back laws (and blocked enforcement) relating to air pollution and water standards, among many others. In the last days of his administration, known as

"the midnight period," the Bush administration proposed rules that would make it harder for the government to limit workers' exposure to toxins, eliminate environmental review from decisions affecting fisheries, ease restrictions on companies that blow up mountains to get at the coal underneath them, allow "factory farms" to ignore the Clean Water Act, and impose rules to effectively gut the Endangered Species Act (Kolbert 2008). Last but not least, with minor tweaking to the Clean Air Act's "New Source Review" provision, power companies such as Duke Energy would be able to circumvent the requirement for installing up-to-date pollution controls on new or renovated plants (Kolbert 2008). This new "anti-rule" would allow an additional seventy million tons of carbon dioxide to be released into the atmosphere each year (Kolbert 2008). The Bush administration also dragged its feet on the issue of climate change and was accused of politicizing and distorting government science, particularly with respect to the issue of global warming (Kennedy 2004; Kolbert 2008).

figure 2.10

Seppo, L. 2008. "Environmental Cartoons." http://www.seppo.net/e/no-more-bush-politics. (Accessed March 20, 2009).

Bush (43) is well known for his deep ties to the oil industry, and under his leadership oil

companies have enjoyed the highest profits in the history of the world, while consumers

suffer sticker shock at the pump, not to mention a flagging economy (Kennedy 2004).

Intergovernmental Relations: Where States Fit In

Clearly, actors within the Federal government play a significant role in the

nation's environmental policymaking. Presidents, their administrations, Congress, and

the organized interests they align themselves with set a tone for environmental awareness

throughout the nation. Though environmental policy is addressed and evaluated

differently in each state, states are still greatly affected by the ideas and actions of the

Federal government, as well as the additional pressures applied by interest groups and

other levels of government.[8] States must also juggle the burden of implementing

environmental policy with added funding issues—most often, a lack thereof (Brown

2008).

With the coming of age of the environmental quality issue in 1969, most notably

with the passage of the National Environmental Policy Act and Ronald Reagan's

subsequent 1981 report of the Council on Environmental Quality, more and more

authority began shifting to the states on issues regarding the environment (Welborn

1988). State governments "occupy a central, intermediary position within the

intergovernmental framework" (Jacoby and Schneider 2001, 545). State responsibilities

have grown tremendously over the past three decades, and the balance of power has

shifted away from the federal government and toward "sub-national jurisdictions"

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[8] See, for example, Kuzmiak 1991; Sussman 2004; PIRG 2007; Environment America 2008; Brown 2008; Stenberg 1994.

(Jacoby and Schneider 2001, 545). Potoski and Woods (2002) affirm that the "locus of environmental policy is increasingly located at the state level" (208).

According to Graham (1998), state and local governments have become responsible for nearly all enforcement of national environmental laws, and "continue to dominate decisions in areas like land use and waste disposal" (Graham 1998, 2). The federal government is gradually transferring the cost of federal environmental rules to the states. States now operate "96% of the federal programs that are delegable to them," and the federal portion of state environmental budgets is "expected to shrink" even further (Brown 2008, 1). With "forty new federal rules implemented each year," states with funding shortages will be faced with progressively more difficult implementation pressures (Brown 2008, 6). Thus, states' environmental decisions take place in an intergovernmental environment that is political, perplexing, and based on a variety of pressures.

State Role in Environmental Policymaking

In light of this trend, the capacities of state governments have expanded to meet new challenges facing them. "State-centered policymaking" has resulted across the nation and signifies a major reconfiguration of governmental responsibility (Jacoby and Schneider 2001, 545). Skocpol and Amenta (1986) consider the independent impact of states on social policymaking. They believe states to be "sites of autonomous official initiatives" (Skocpol and Amenta 1986, 131). They also acknowledge that states' "institutional structures help to shape the political processes from which social policies emerge" (Skocpol and Amenta 1986, 131).

Within the United States there are fifty state governing bodies and numerous municipalities that confront a variety of social ills, political issues, and constituent demands (Jacoby and Schneider 2001). States differ in financial and regulatory discretion involving a variety of environmental issues such as waste management, air quality, water quality, and carbon footprint. States allocate varying amounts of money and attention to different programs based on factors such as economic conditions, population needs, and federal assistance (Schneider and Jacoby 2003). Policymakers' expenditure priorities, or *policy priorities*, are based on the allocation of scarce resources to different program areas (Hendrick and Garand 1991). Thus, the higher the priority, the greater the financial investment should be. Because competition among policy areas is greater within the states than at the federal level, states are likely to engage in "expenditure tradeoffs" (Hendrick and Garand 1991, 298).

An *expenditure tradeoff* is a "pattern of yearly shifts in spending priorities between policy areas such that an increase in the priority of one area is accompanied by a decrease in the priority of another and vice versa" (Hendrick and Garand 1991, 298). Furthermore, many areas of public policy are actually a "combination of multiple policies, programs, and activities each of which serve a different public purpose" (Potoski and Woods 2002, 211). Because they have predominantly different purposes, states' policy decisions in each program area may be driven by different factors. The trend toward greater state discretion continues; however, it is not without significant pressures and difficulties at various levels.

State Pressures

As the middle tier in the federal system, states are met with horizontal and vertical pressures (Stenberg 1994). Local officials look to their states for "fiscal relief, equalization, and functional assumption" with respect to "constrained boundaries, regional problems, regressive tax systems, and inequitable service delivery and financial arrangements" (Stenberg 1994, 135). "Budget deficits, entitlement program commitments, and debt service obligations" have also caused federal officials to look to the states to shoulder more responsibility for meeting the needs that do not compel national financial or regulatory commitments (Stenberg 1994, 136).

Horizontally, states are pressured by one another as a result of the real and perceived effects of "interstate tax competition, regulatory forum shopping by private industry," and economic development opportunities (Stenberg 1994, 136). Steven Brown (2008, 6), the executive director of the Environmental Council of the States, argues that the pressures associated with budget shortages and more federal mandates force state alternatives that will eventually "narrow to program delays, difficulties with program quality, or return of programs to the EPA for implementation."

What is a Green State?

Regardless of the pressures they face, some states are more capable and committed than ever. Others have a harder time dealing with these pressures, and leave behind negative impacts on their environments. Green states place high importance on carbon emissions, air quality, water quality, energy consumption, hazardous waste management, and policy initiatives focused on the environment (Wingfield and Marcus

2007; Eldridge 2008). A green state pays strict attention to these issues and abides by existing environmental policies, as well as initiates new policy in these areas.

A state's carbon footprint, (or carbon dioxide emissions per capita), provides a fairly good indication of its overall emissions levels and goes hand-in-hand with energy consumption (Wingfield and Marcus 2007; O'Neill and Chen 2002). A low carbon footprint signifies that a state is producing low levels of carbon dioxide and other greenhouse gases. Efficient use of energy in areas such as residential and transportation sectors can help states cut down on their release of harmful emissions.[9] In 2005, residential and transportation energy use accounted for about "one-half of total energy use in the United States," up from "one-third since 2002" (U.S. Department of Energy 2005, S1; O'Neill and Chen 2002, 62). US residential and commercial buildings accounted for "38% of total carbon emissions in 2006" (U. S. Dept. of Energy/Scott and Huang 2007, 8). Together, residential and transportation energy use accounted for "over one-half of total CO2 emissions in 2006" (U.S. Dept. of Energy/EIA 2007, "Carbon Dioxide Emissions"). States mandating or offering incentives for the replacement of fuels used in household heating and transportation with alternatives, such as biofuels, can reduce greenhouse gases and energy consumption (Clean Energy Review 2009).   The Energy Policy Act includes a provision that increases the amount of biofuel that must be mixed with gasoline sold in the U.S. (EPA 2009, "Summary of the Energy Policy Act"). Thus, states that follow the Act, and those that generate additional policy in this area, are considered greener.

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[9] See for example, Eldridge 2007; U.S. Department of Energy 2005; O'Neill and Chen 2002; Clean Energy Review 2009.

figure 2.11

"Don't worry. It's part of the greenhouse effect."

Epstein, B. http://www.benitaepstein.com/environment%20cartoons/environment.html. (Accessed March 1, 2009).

Pollution standards contribute to a higher or lower air quality in certain areas (Environment America 2008; Clean Energy Review 2009). Power plants are the nation's largest industrial source of air pollution, followed by cars and trucks (Environment America 2008). Air pollution given off by these entities creates smog, fine particle soot, mercury, and other toxic air pollutants (Environment America 2008). States that offer incentives or mandate the usage of biodiesel, which is the fastest growing and most cost-efficient fuel for fleet vehicles, can significantly cut down on air pollution and harmful emissions (Clean Energy Review 2009). States with higher air quality tend to have major metro areas with lower levels of smog and ozone pollution (Wingfield and Marcus 2007). Thus, it could be argued that these states would be more likely to follow the guidelines of the Clean Air Act (including all of its provisions), follow existing EPA regulations regarding clean air policy, and implement new and/or updated policies to improve air quality within their respective state.

A state's clean water is determined by whether its water facilities meet the goals of eliminating the discharge of pollutants in the nation's waterways, through surface

entry or wastewater treatment infrastructure, as outlined in the Clean Water Act. The Clean Water Act, though severely limited during the Bush (43) administration, prohibits facilities from discharging pollutants from a point source into a waterway unless it has a National Pollutant Discharge Elimination System (NPDES) permit (U.S. PIRG 2007). The permit limits what the facility can discharge and imposes monitoring and reporting requirements (U.S. PIRG 2007). Many states' facilities exceed their Clean Water Act permit limits, some to egregious levels. Maine, Massachusetts, Rhode Island, New Hampshire, Ohio, Connecticut, New York, North Dakota, California, and West Virginia had the highest percentage of major facilities that had exceeded their permit limits at least once (U.S. PIRG 2007, 1). In fact, during 2005, Ohio, Pennsylvania, New York, Texas, California, Massachusetts, Louisiana, Tennessee, Alabama, and Florida (ten U.S. states) had multiple instances of exceeding their Clean Water Act permits (PIRG 2007, 2). States adhering to the guidelines of the Clean Water Act, including paying strict attention to and not exceeding their permit limits, should be greener in the area of water quality.

Forty-five years after Rachel Carson wrote *Silent Spring*, chemical companies are still endangering our environment with toxic waste (Environment America 2008). In fact, polluters continue to dump "billions of pounds of toxic substances into our air, land, and water each year, many of which cause cancer and other severe health effects" (Environment America 2008, "Stop Toxic Pollution"). "The most polluted of these sites, called Superfund sites, threaten the health of millions" (Environment America 2008, "Cleaning Up a Toxic Legacy"). In 1987, Congress introduced legislation that mandated polluters must pay to clean up these sites (Environment America 2008). Unfortunately, in 1995, the Superfund "polluter pays" fees that once compelled large-scale polluters to

provide money for Superfund cleanups expired (Environment America 2008, "Cleaning

up a Toxic Legacy"). Lacking sufficient funds to clean up these sites, the EPA must

prolong existing site cleanups and postpone cleanups at new sites (Environment America

2008).

figure 2.12
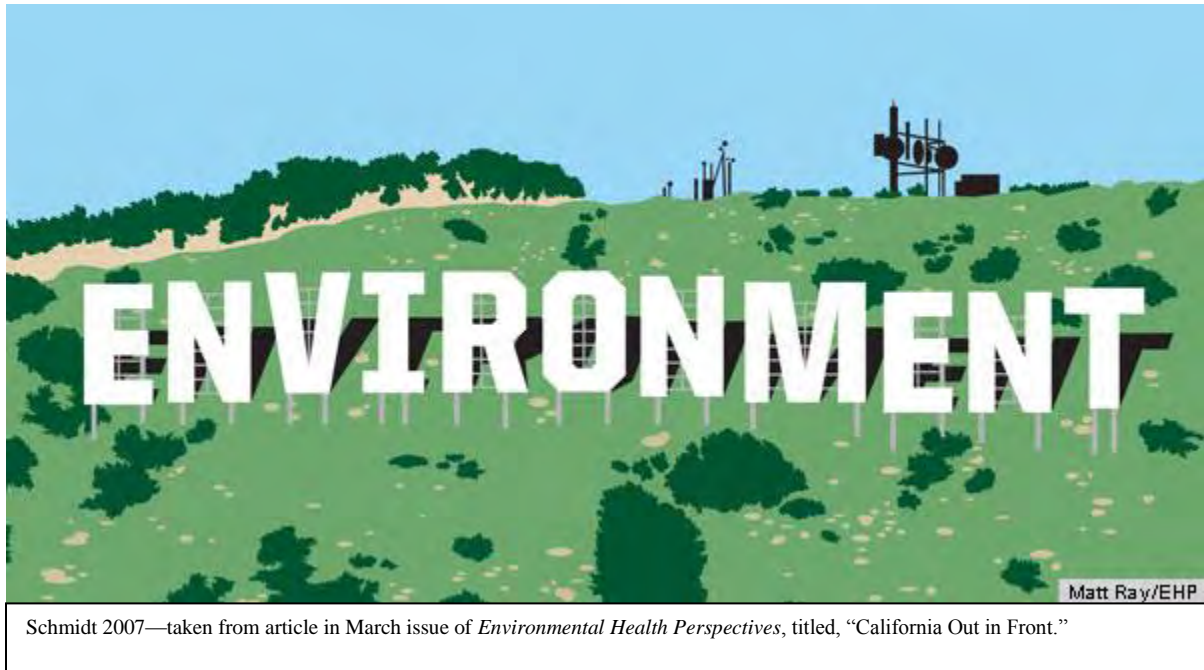
Schmidt 2007—taken from article in March issue of *Environmental Health Perspectives*, titled, "California Out in Front."

In 2008, California became the first state to regulate toxic chemicals in consumer

products, while Washington became the first state to pass a law phasing out deca-BDE, a

toxic chemical found in everything from laptops to mattresses (Environment America

2008). Each state's hazardous waste management is also affected by its compliance (or

noncompliance) with the Toxic Substances Control Act of 1976 and the subsequent

expansion of these efforts in 2008 with the Chemical Assessment and Management

program (CHAMP). The Toxic Substances Control Act and the CHAMP program

provide the EPA with "authority to require reporting, record keeping and testing

requirements, restrictions relating to chemical substances and/or mixtures," and by

making publicly available the screening level toxicity information on existing chemicals (EPA 2009, "Summary of the Toxic Substances Control Act" 1). States can also take the initiative, as California and Washington have done, and formulate additional policy in this area. States in compliance with the Act and those implementing their own strategies, would be considered greener with respect to their hazardous waste management.

States interested in becoming green can introduce policy improvements in all of the described areas above. For example, if states want to lower carbon emissions and protect the ozone layer, states can monitor vehicle miles traveled and the number of alternative fuel and hybrid-electric vehicles per capita by state, and the number of buildings that have received the U.S. Green Building Council's energy efficient LEED certification (Leadership in Energy and Environmental Design) (Wingfield and Marcus 2007). States can also follow the guidance of the Energy Policy Act, which provides loan guarantees for entities that develop or use innovative technologies that avoid the by-production of greenhouse gases and reduce energy consumption (EPA 2009, "Summary of Energy Policy Act"). Regarding the issue of water quality, states could compile and publish an analysis of enforcement actions taken during the preceding year; including the number of actions, the type of enforcement actions, the average penalty assessed, the total number of facilities in noncompliance and the reason, and the number and percentage of facilities with expired permits (U.S. PIRG 2007).

The *2007 Forbes List of America's Greenest States*

The 2007 Forbes List of America's Greenest States ranks each state's status according to their attention to environmental standards. Table 2.1 displays their rankings with regard to policies and programs in the areas of carbon footprint, air and water

quality, waste management, and energy consumption. The *Forbes List* ranked the states according to six equally weighted categories: "carbon footprint, air quality, water quality, hazardous waste management, policy initiatives and energy consumption" (Wingfield and Marcus 2007, 2). This ranking system serves as a useful tool to compare states that rank at the top on the green scale and those that rank at the bottom. States that have a higher ranking on this list produce low levels of carbon emissions; follow the existing guidelines (as well as updated policies by the EPA) in areas of air, water quality, and waste management; and produce policies geared at innovative technologies to cut down on energy consumption, greenhouse gases, and pollution.

Table 2.1[10]
States' Ranking and Scores on the *Forbes List*

Rank	State	Score
1	Vermont	43.6
2	Oregon	43.6
3	Washington	43.4
4	Hawaii	41.3
5	Maryland	40.4
6	Connecticut	39.8
7	New Jersey	39.5
8	Rhode Island	38.7
9	New York	38.1
10	Arizona	37.9
11	Massachusetts	37.8
12	Idaho	37.2
13	Colorado	37.2
14	California	37.1
15	Minnesota	36.3
16	Wisconsin	35.7
17	Nevada	35.1
18	New Mexico	34.7
19	New Hampshire	33.7
20	Florida	32.9
21	South Dakota	32.6
22	Montana	31.5
23	Virginia	30.5
24	Michigan	30.3
25	Maine	29.9
26	North Carolina	29.5
27	Illinois	28.6

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[10] Source: Wingfield and Marcus 2007.

Rank	State	Score
28	Utah	28.5
29	Georgia	28.2
30	Delaware	28
31	Kansas	27.7
32	Pennsylvania	27.5
33	Nebraska	27.5
34	Texas	26.5
35	Iowa	26.4
36	South Carolina	25.3
37	Wyoming	24.8
38	Oklahoma	24.2
39	Ohio	23.4
40	Alaska	22.7
41	Missouri	22.6
42	North Dakota	22.2
43	Tennessee	22.2
44	Arkansas	20.8
45	Kentucky	20.4
46	Mississippi	17.6
47	Louisiana	17
48	Alabama	15.8
49	Indiana	15.3
50	West Virginia	14.2

States that rank on top—Vermont, Oregon, and Washington—"all have low carbon dioxide emissions per capita (or carbon footprints), strong policies to promote energy efficiency and high air quality, as indicated by their major metro areas that are low in smog and ozone pollution" (Wingfield and Marcus 2007, 1). They're also among the states with the most buildings per capita that have received the U.S. Green Building Council's benchmark LEED (Wingfield and Marcus 2007). States that rank among the bottom—such as Mississippi, Louisiana, Alabama, Indiana, and at number fifty, West Virginia—"all suffer from a mix of toxic waste, lots of pollution and energy consumption, and no clear plans to do anything about it" (Wingfield and Marcus 2007, 2).

By studying the factors that determine a state's ranking and evaluating factors that influence states' commitments to being green, policymakers, scholars, and the informed

public can better understand the factors that contribute to a state's maintenance and adoption of environmental policies and programs.

Factors Affecting States' Policy Greenness

The literature identifies four factors that explain variations in state environmental policy outcomes. These factors are a state's spending on environmental programs, level of energy efficiency, level of liberalism, and political culture. Policy priorities "operationalize governmental decision agendas" and are a "clear manifestation of the institutional commitments of state governments" (Jacoby and Schneider 2001, 546). Environmental policy is an area affected by policy priorities and varies from state to state (Jacoby and Schneider 2001; Hendrick and Garand 1991). Determining which factors contribute to the variation in attention to existing policy, as well as the implementation of new policy, may help explain why some states pursue environmental program efforts more vigorously than others (Bacot and Dawes 1997).

Chapter Summary

Examining the history of environmental policy, the modern environmental movement, environmental policy in the twenty-first century, the role of federal and state government environmental relations, the pressures facing states that engage in environmental consciousness, the environmental issues that define green, the *2007 Forbes List of America's Greenest States*, and factors that in turn affect states' ranking on the list should help in understanding the capacity of a state to be green. The next chapter reviews scholarly literature that identifies factors influencing a state's ranking on the *Forbes List*.

Chapter 3
Literature Review

The purpose of the literature review is to examine factors affecting states'

rankings on the *2007 Forbes List of America's Greenest States*. The literature review

discusses factors that affect the likelihood that a state will abide by and implement

existing environmental policies as well as formulate new policies. Environmental

program spending, energy efficiency, a state's level of liberalism, and political culture are

the factors examined and reviewed as possible determinants affecting states' ranking on

the *Forbes List*. After reviewing the existing literature, four hypotheses that should

explain where a state falls on the *Forbes List* are developed.

Environmental Program Spending

States' per capita expenditures on environmental programs is the first variable

tested in the research, and is expected to positively influence a state's ranking on the

Forbes List. Spending on environmental programs is one of the most widely used

indicators for measuring a state's environmental policy commitment (Bacot and Dawes

1997; Potoski and Woods 2002).   State expenditures are the most "direct empirical

manifestation of their policy priorities" (Jacoby and Schneider 2001, 545). Astute

observers of the political system know that adequate financing is a necessary

precondition for meaningful policy activity.[11] In spite of inflation and cuts in federal

support, state spending on the environment has continued to increase since fiscal year

(FY) 2004 (Brown 2008). State per capita spending on environmental programs can be

measured by "those combinations of state, federal, and other funds (fees, licenses, etc.)

that pass through the state budgetary process" and are allocated to environmental policies

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[11]See for example, Schneider and Jacoby 2003; Hendrick and Garand 1991; Jacoby and Schneider 2001.

(Agthe, Billings, and Marchand 1996, 25). Research suggests that spending on environmental programs varies in stringency and in number of programs across different environmental and political contexts (Potoski and Woods 2002).

Though measuring expenditures may be the most suitable method for estimating a state's environmental effort, "dollars do not always translate automatically into superior environmental situations" (Agthe et al. 1997, 366). Analyzing aggregate spending masks a great deal of variation in the politics of the environmental budget-allocation process and the different types of problems states face. Some environmental spending areas are more or less receptive to political pressures, while more salient environmental problems may be significant to other types of spending (Newmark and Witko 2007). Research also suggests that spending on environmental programs may translate into more spending aimed at states with greater environmental problems, such as pollution severity.[12] For each pollutant, in each context, one policy may be more efficient while others better account for competing objectives, such as "administrative efficiency, political feasibility, and fairness" (Fullerton 2001, 224). Environmental problems are certainly found to be one factor that generates spending on environmental programs. Thus, some states facing a great deal of environmental problems may spend more than others.

Nevertheless, spending levels provide the clearest, most unequivocal indicator of government commitments to address various problems and social issues.[13] The amount of money spent, and the expenditure category to which it is directed are indicators of lawmakers' policy priorities. The number of dollars dedicated to environmental programs will directly affect states' consciousness of existing environmental programs

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[12] See for example, Bacot and Dawes 1997; Graham 1998; Greenberg 2004.
[13] See for example, Hendrick and Garand 1991; Jacoby and Schneider 2001, Schneider and Jacoby 2003.

and policies, as well as the formulation of new policy. Money creates programs and provides the resources for improvement. States that spend more funds on environmental programs should expect to see tougher and more progressive policies aimed at the environment. Further, expenditures on environmental programs influence states' commitment to adopting stringent environmental programs and policies. Thus, one would expect:

H[1]:   There is a negative relationship between expenditures per capita on environmental programs and states' ranking on the *2007 Forbes List of America's Greenest States*.[14]

Energy Efficiency

Energy efficiency is another variable anticipated to influence a state's ranking. Higher levels of energy efficiency should positively affect states' rankings on the *2007 Forbes List of America's Greenest States*. Due to rapidly "increasing energy prices, constraints in energy supply and transmission," as well as "reliability concerns," states have started turning to energy efficient technologies as "the most reliable, cost-effective, and quickest resource to deploy" (Eldridge et al. 2008, iii).

Thomas Friedman described a study by the McKinsey Global Institute (February 2008) in his 2008 book *Hot, Flat, and Crowded: Why We Need A Green Revolution—And How It Can Renew America*. The study concluded the world could cut projected global energy demand growth between now and 2020 "by at least half by capturing opportunities to increase energy productivity—the level of output we achieve from the energy we consume" (Friedman 2008, 191). He argues that so much of this effort

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[14] States that spend more per capita on environmental programs should expect to have a lower ranking, (or *improved* ranking), on the *Forbes List,* indicating a negative relationship. Thus, they should be greener.

involves just being smarter about how we design the world around us—from buildings, to packages, to vehicles, to refrigerators, to air conditioners and lighting systems, and then constantly insisting on higher and higher standards of efficiency from each of them (Friedman 2008). We should get the same comfort, mobility, and illumination from fewer resources based on this new technology.

The role of new technologies in solving a wide range of environmental and natural resource problems is receiving increased attention from policymakers. Concern about carbon dioxide emissions has focused particular attention on the role of energy efficiency, or energy-conserving technologies (Jaffe and Stavins 1994). States are adopting aggressive energy efficiency policies and increasing investments in efficiency programs (Eldridge 2008). In 2007, the states had energy efficiency budgets of nearly $3 billion (Consortium on Energy Efficiency 2008). This translates into investments of almost two to three times the amount of equivalent federal spending (CEE 2008).

In the literature, energy efficiency is typically measured by states' likelihood to develop and implement new structures and organizations in areas such as transportation and the residential and building energy sectors. Much of a state's energy efficiency programs and policy efforts are located in the utility and/or "public benefits" and transportation sectors (Eldridge 2008). Efficient uses of energy in these sectors reduce costs for states and taxpayers, lower energy consumption, and reduce the effects of harmful emissions (Eldridge 2008; Clean Energy Review 2009).

O' Neill and Chen (2002) believe that projecting energy demand is a critical component to understanding and anticipating future resource requirements and environmental impacts over the coming decades. Residential sector emissions grew the

most in 2007 (U.S. Dept. of Energy/EIA 2007, "Carbon Dioxide Emissions"). Together, residential and transportation energy use accounted for "over one-half of total CO2 emissions in 2006" (U.S. Dept. of Energy/EIA 2007, "Carbon Dioxide Emissions").

Changes in energy consumption in key climate-sensitive sectors of the economy, such as the transportation and residential sectors, require action on the part of many state legislatures. Many states have established new structures and tasked new organizations to handle the responsibility of administering and delivering energy efficiency programs in these areas (Eldridge 2008).

Energy efficient technology is a tool that can help states actually reduce energy consumption to combat rising demand, reduce costs, and stop harmful emissions. Stopping harmful emissions, or lowering its carbon footprint, is critical to a state's environmental health. Therefore, legislatures leading the nation in policies aimed at energy efficient technologies are investing in programs and policies that protect the environment. They should have a lower ranking number on the *Forbes List*. Thus, one would expect:

H^2: There is a negative relationship between states' level of energy efficiency and a state's ranking on the *2007 Forbes List of America's Greenest States.*[15]

Level of Liberalism

A state's level of liberalism[16] is a characteristic widely studied and expected to influence a state's ranking on the *2007 Forbes List of America's Greenest States*. The

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[15] States that invest in energy efficiency technology should have a lower ranking number on the *Forbes List*, or *improved* ranking number. Thus, they should be greener. This indicates a negative relationship.
[16] For a Texas State Applied Research project that discusses and tests the issue of policy liberalism, see Doehrman 2007.

literature suggests that a state's ideological leanings affect policy outcomes. States with higher levels of liberalism would expect to be associated with policy priorities focused around health, welfare, and social concerns (Doehrman 2007). Thus, environmental priorities should be highest among states with more liberal citizens and lawmakers.

Berry et al. (1998) examined the relationship between opinion ideology, legislator ideology, and policy decisions between 1960-1993. They measured opinion ideology by *state citizen ideology*, or the "mean position on a liberal-conservative continuum of the 'active-electorate' in a state" (Berry et al. 1998, 327). *State government ideology* is the "mean position on the same continuum of the elected public officials in a state— weighted according to the power they have over public policy decisions" (Berry et al. 1998, 327-28). Though their findings indicated shifts in states' citizens and leaders, both ideologies were found to have an effect on policy decisions (Berry et al. 1998, 343).

Although issues relating to the environment are generally considered nonpartisan in nature, Kuzmiak (1991) maintains that Democrats are more environmentally concerned than Republicans. Studies show that pro-environmental attitudes are consistently higher among Democrats and the liberal Left than among their Republican and Conservative counterparts (Dunlap 1975). This helps to explain the variation in environmental policy decisions under Republican and Democratic Congresses and presidential administrations; partisanship among lawmakers has had a direct impact on US environmental policymaking (Dunlap 1975; 1991).

Jacoby and Schneider (2001) constructed a model for determining factors that affect the ways state governments establish priorities regarding different policy and expenditure areas when allocating scarce resources. They found that with regard to party

attachments, "states with larger numbers of Democratic Party identifiers within their electorates tend to focus their resources on programs that provide particularized benefits to needy groups" (Jacoby and Schneider 2001, 559.) These results further confirm that a state's level of liberalism affects policy and expenditure priorities.

Fredrick J. Boehmke (2005) studied factors that determine the number of initiatives that appear on statewide ballots. Boehmke (2005) hypothesized that "more liberal states would have more initiatives due to their history as progressive institutions, and a potentially greater concern with post-material, quality-of-life issues" (Boehmke 2005, 570). He found that the number and type of initiatives included on statewide ballots are affected by ideology. Republican legislatures have significantly fewer total initiatives, while "states that are more liberal have more of all types of initiatives, especially civil rights and environmental initiatives" (Boehmke 2005, 573). This research shows that there is a difference in the number and types of laws that liberal and conservative states propose to their citizens. This study suggests that liberal states are more likely to present initiatives to be voted on that deal with environmental policy.

Furthermore, studies suggest that states characterized by general policy liberalism typically demonstrate "greater environmental commitment than states that produce more conservative policies" (Hays, Scott, Esler and Hays 1996, 58).   States with higher levels of liberalism should expect policy priorities focused around social concerns, including the environment. Thus, liberal states should be more likely to focus on programs and policies that deal with the environment, and therefore should rank lower on the *Forbes List.*

H[3]:   Level of liberalism positively influences a state's ranking on the *2007 Forbes List of America's Greenest States*.[17]

Political Culture

The typology of political culture[18] is the final characteristic expected to influence a state's ranking on the *Forbes List*. In accounting for differences in state politics and public policy, many scholars still rely on the research of political culture done by Daniel J. Elazar over forty years ago.[19] According to Koven and Mausolff (2002), the *idea* of political culture has been around since the prophets of the Bible and the ancient historians wrote and spoke about politics. *Political culture* can be characterized as "persons of similar culture behave similarly, seeking similar governmental programs and expenditure levels; and to the degree that two states share the same culture, they behave similarly" (Luttbeg 1971, 705).

Elazar's analysis and description of political culture in the United States has emerged as one of the leading predictors of state variance in public policy outputs.[20] Elazar was the first to identify these cultures and trace their evolution as a result of historical migration and settlement patterns.[21] The cultures are based on three basic political orientations—"moralistic, individualistic, and traditionalistic"—and are often included with "sets of economic and social variables to predict political and policy variations among the states" (Morgan and Watson 1991, 31).

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[17] Lower numbers correlate with more liberal states; more liberal states rank lower on the *Forbes List*. This delineates a positive relationship. The lower a state's ranking on the *Forbes List*, the greener the state.

[18] For another Texas State ARP that discusses and tests the issue of political culture, see Spacek 2004.

[19] See, for example, Elazar 1966; Morgan and Watson 1991; Sharkansky 1969; Koven and Mausolff 2002; Luttbeg 1971; Patterson 1968.

[20] See, for example, Elazar 1966; Lowery and Sigelman 1982; Sharkansky 1969; Koven and Mausolff 2002; Miller 1991; Morgan and Watson 1991; Johnson 1976.

[21] See, for example, Elazar 1966; Morgan and Watson 1991; Lowery and Sigelman 1982; Luttbeg 1971.

Each culture is thought to convey a different understanding of the purpose of political action and government policy. For example, the moralistic culture views government as a fundamental force for the "good life" in the "quest for a common weal" (Morgan and Watson 1991, 33). The traditionalistic culture allows an active role for government, but mainly as a "keeper of the old social order, where political affairs should remain chiefly in the hands of established elites who claim rights to govern through family ties or social position" (Morgan and Watson 1991, 33). The individualistic culture conceives of the political system as a "marketplace, in which individuals and groups advance their self interests through political action" (Morgan and Watson 1991, 33). The impact of political culture on policy is transmitted through the matrix of political attitudes and expectations that grow out of each culture.

Political culture is typically measured using the index developed by Ira Sharkansky in 1969. Sharkansky's (1969) index ranges from 1 (pure moralisitic) to 9 (pure traditionalistic), and classifies state culture based on social and economic variables. According to the literature (and earlier arguments on environmental program spending), financing is a necessary precondition for meaningful policy activity.[22] Thus, the amount of money government officials dedicate to policy areas determines policy priorities. Koven and Mausolff (2002) studied the relationship between public expenditures and a state's dominant political culture. They hypothesized that state spending would vary considerably between moralistic, individualistic, and traditionalistic states. Their findings revealed that public expenditures appear to be based on the continued existence of distinct cultures among the states. With regard to specific cultural variation, they found that spending does differ among the cultural groups of states. As expected,

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[22] See for example, Hendrick and Garand 1991; Jacoby and Schneider 2001; Schneider and Jacoby 2003.

"traditionalistic cultures had the lowest expenditures and moralistic had the highest" (Koven and Mausolff 2002, 72).

Miller (1991), in a similar study, found that states with a moralistic culture were positively related to higher expenditures for health programs, environmental programs, and interest payments. Theoretically consistent with Elazar, Miller (1991) also found the moralistic culture to be associated with a "concern for the public good" (Miller 1991, 98). The idea that political culture affects public policies and budget outputs focused on social concerns, including the environment, is well established in the literature.[23]

Environmental policy, and the amount of money allocated for environmental programs and policies are affected by a state's political culture. According to the literature, more moralistic states should provide the most funds and most attention toward environmental programs and policies, and traditionalistic states should provide the least. Therefore, there is no doubt that political culture should influence a state's ranking on the *Forbes List*.

> H[4]:   States with a moralistic political culture should rank lower on the *2007*
>
>   *Forbes List of America's Greenest States*.[24]

Conceptual Framework

After reviewing the literature, four factors are hypothesized to affect a state's ranking on the *2007 Forbes List of America's Greenest States*. The literature supports states' per capita expenditures on environmental programs, level of energy efficiency, level of liberalism, and political culture as factors that influence states' rankings on the

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[23] See for example, Koven and Mausolff 2002; Luttbeg 1971; Miller 1991; Morgan and Watson 1991; Sharkansky 1969.
[24] More moralistic states should rank lower on the green scale, therefore indicating a negative relationship. States ranking lower on the scale represent greener states.

2007 Forbes List of America's Greenest States. The purpose of this research is to determine whether any of these factors affect states' rankings on the *2007 Forbes List of America's Greenest States*.

This explanatory study uses four formal hypotheses. Explanatory research and the formal hypothesis are the "mainstay of social and policy science" (Shields and Tajalli 2006, 328). According to Shields and Tajalli, the research hypothesis is the "organizing engine that drives explanatory research" (2006, 328).[25] Table 3.1 summarizes the hypotheses and links them to the literature.

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[25] For more information on conceptual frameworks, see Shields, P. 1998. Pragmatism as philosophy of science: A tool for public administration. *Research in Public Administration* 4: 195-225. http://ecommons.txstate.edu/polsfacp/33/.

Table 3.1
Conceptual Framework Linked to Literature

Hypothesis	Supportive Sources
H[1]: Higher expenditures per capita on environmental programs negatively influence states' ranking on the *2007 Forbes List of America's Greenest States.*	Agthe, Billings, and Marchand (1996) Bacot and Dawes (1997) Brown (2008) Fullerton (2001) Jacoby and Schneider (2001) Newmark and Wiko (2007) Potoski and Woods (2002) Schneider and Jacoby (2003)
H[2]: Greater levels of energy efficiency negatively influence states' ranking on the *2007 Forbes List of America's Greenest States*.	Eldridge et al. (2008) Clean Energy Review (2009) Consortium on Energy Efficiency (2008) Jaffe and Stavins (1994) O'Neill and Chen (2002) U.S. Department of Energy/EIA, "Carbon Dioxide Emissions" (2007)
H[3]: Level of liberalism positively influences a state's ranking on the *2007 Forbes List of America's Greenest States*.	Berry et al. (1998) Boehmke (2005) Doehrman (2007) Dunlap (1975) and (1991) Hays, Esler, and Hays (1996) Jacoby and Schneider (2001) Kuzmiak (1991)
H[4]: States with a moralistic political culture should rank lower on the *2007 Forbes List of America's Greenest States.*	Elazar (1966) Hendrick and Garand (1991) Jacoby and Schneider (2001) Koven and Mausolff (2002) Luttbeg (1971) Lowery and Sigelman (1982) Miller (1991) Morgan and Watson (1991) Patterson (1968) Schneider and Jacoby (2003) Sharkansky (1969)

Chapter Summary

The literature suggests that states' per capita expenditures on environmental programs, energy efficiency, liberalism, and political culture are factors that affect a state's ranking on the *2007 Forbes List of America's Greenest States*. States' commitment to environmental policies and programs vary with regard to numerous

factors. However, the literature review provides evidence that these four factors do

contribute to effects on environmental policy among the states.

figure 3.1

McCracken, T. http://www.mchumor.com (Accessed March 20, 2009).

Chapter 4
Methodology

This section discusses the methodology used to test factors affecting states' ranking on the *2007 Forbes List of America's Greenest States*. This study is explanatory and the hypotheses are operationalized through variables found in the literature.[26] The research uses analyses of existing data to test the four formal hypotheses. The statistical technique used to test the hypotheses is multiple regression analysis. Each variable is defined and a source of existing data is discussed. In this research, each of the 50 states is the unit of analysis. The dependent variable is the states' positioning or ranking on the *2007 Forbes List of America's Greenest States*. There are four independent variables: states' per capita expenditures on environmental programs, energy efficiency, level of liberalism, and political culture. A multiple regression is performed to test the effects of the independent variables on states' ranking on the *Forbes List*. The variable definitions and data source for each hypothesis are found in Table 4.1.

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[26] For other Texas State ARPs that use explanatory studies, see Doehrman 2007; Huang 2009; and Reed 2009.

Table 4.1
Operationalization of the Conceptual Framework

Dependent Variable	Direction	Definition	Data Source
State positioning on *Forbes List of America's Greenest States* (policy greenness)		States' rankings range (1-50)	Brian Wingfield and Miriam Marcus: The *2007 Forbes List of America's Greenest States*
Independent Variables			
Per capita expenditures on environmental programs[27]	—	Average per capita state expenditures on environmental programs in 2006 & 2007	Steven R. Brown, (appendix): The Environmental Council of the States (data on state expenditures on environmental programs)
Energy efficiency[28]	—	A numerical score ranging from (0-50) representing states' adoption and implementation of energy efficiency policies and programs.	Maggie Eldridge, Max Neubauer, Dan York, Shruti Vaidyanathan, Anna Chittum, and Steven Nadel: *The 2008 Energy Efficiency Scorecard*
Level of liberalism[29]	+	A numerical score representing states' policy liberalism index. Index number composed of 5 state level policy-based issues. Lower numbers represent more liberal states and higher numbers correlate with more conservative states.	Virginia Gray, David Lowery, Matthew Fellowes, and Andrea McAtee: *Public Opinion, Public Policy, and Organized Interests in the American States*—Policy Liberalism Index
Political culture (moralistic)[30]	—	A numerical score indicating states' political culture index based on Sharkansky's Political Culture Scale. Moralistic culture score will be represented using a score of 1 and other culture scores represented using 0.	Steven G. Koven and Christopher Mausolff: *The Influence of Political Culture on State Budgets: Another Look at Elazar's Formulation*

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[27] As per capita expenditures increase the state's ranking number should *improve*, or be a lower number on the *Forbes List*. This distinguishes a greener state. This also indicates a negative relationship.
[28] As states devote more resources toward energy efficiency, the state's ranking number should *improve*, or be a lower number on the *Forbes List*. This distinguishes a greener state and indicates a negative relationship.
[29] Lower numbers represent more liberal states; the more liberal states should have lower rankings on the *Forbes List*. Lower rankings represent greener states. Thus, there is a positive relationship between liberalism and the *Forbes List*.
[30] More moralistic cultures should devote more energy to the environment. Therefore, their rank should *improve*, or be lower on the *Forbes List*. This indicates a greener state and a negative relationship with the dependent variable.

Dependent Variable

States' positioning or ranking on the *2007 Forbes List of America's Greenest States* serves as the dependent variable. Each of the 50 states was ranked in six equally weighted categories: carbon footprint, air quality, water quality, hazardous waste management, policy initiatives, and energy consumption. Each state was subsequently given a score based on its rankings in the six categories. Based on its overall score the states were ranked again, from one to fifty, compiling the *2007 Forbes List of America's Greenest States*. For example, number one is Vermont, with a score of 43.6, and number fifty is West Virginia, with a score of 14.2 (Wingfield and Marcus 2007, 2-3). Table 4 lists the states' rankings and provides their overall numerical scores. For the purposes of this research, only the rankings were used in the regression test.

Table 4.2
States' Ranking and Scores on the *Forbes List*

Rank	State	Score
1	Vermont	43.6
2	Oregon	43.6
3	Washington	43.4
4	Hawaii	41.3
5	Maryland	40.4
6	Connecticut	39.8
7	New Jersey	39.5
8	Rhode Island	38.7
9	New York	38.1
10	Arizona	37.9
11	Massachusetts	37.8
12	Idaho	37.2
13	Colorado	37.2
14	California	37.1
15	Minnesota	36.3
16	Wisconsin	35.7

Rank	State	Score
17	Nevada	35.1
18	New Mexico	34.7
19	New Hampshire	33.7
20	Florida	32.9
21	South Dakota	32.6
22	Montana	31.5
23	Virginia	30.5
24	Michigan	30.3
25	Maine	29.9
26	North Carolina	29.5
27	Illinois	28.6
28	Utah	28.5
29	Georgia	28.2
30	Delaware	28
31	Kansas	27.7
32	Pennsylvania	27.5
33	Nebraska	27.5
34	Texas	26.5
35	Iowa	26.4
36	South Carolina	25.3
37	Wyoming	24.8
38	Oklahoma	24.2
39	Ohio	23.4
40	Alaska	22.7
41	Missouri	22.6
42	North Dakota	22.2
43	Tennessee	22.2
44	Arkansas	20.8
45	Kentucky	20.4
46	Mississippi	17.6
47	Louisiana	17
48	Alabama	15.8
49	Indiana	15.3
50	West Virginia	14.2

Independent Variables

Per Capita Expenditures on Environmental Programs

Per capita expenditures on environmental programs is the total amount spent on environmental programs divided by the total population of the state. Brown (2008) provides an appendix taken from *The Environmental Council of the States*, which lists the total and itemized expenditures related to each state's environmental programs. For

purposes of this research, the states' environmental program data are based on the fiscal

years 2006 and 2007 (whichever year actual data were published from the study). The

only states relying on fiscal year 06' data are: AL, AK, AR, and NY. The U.S. Census

Bureau, *Population Division* was the source for the 2007 data for the state populations.

The averaged environmental (per capita) expenditure will be entered into the multiple

regression to test the effects of per capita expenditures on environmental programs on

states' ranking on the *2007 Forbes List of America's Greenest States*. Table 4.3 lists the

states according to their population size and amount of money allocated to environmental

program spending. The last column indicates their per capita expenditure on

environmental programs.

Table 4.3
State Populations, Expenditures on Environmental Programs, and Per Capita
Expenditures on Environmental Programs

State	Population (in millions)	Expenditures on Environmental Programs (in millions)	Per Capita Expenditures on Environmental Programs
Alabama	4,447,100	53,770,361	**12.09**
Alaska	626,932	54,137,400	**86.35**
Arizona	5,130,632	137,966,800	**26.89**
Arkansas	2,673,400	43,632,465	**16.32**
California	33,871,648	1,275,577,000	**37.66**
Colorado	4,301,261	50,694,496	**11.79**
Connecticut	3,405,565	130,432,882	**38.30**
Delaware	783,600	194,002,200	**247.58**
Florida	15,982,378	1,245,155,861	**77.91**
Georgia	8,186,453	129,038,345	**15.76**
Hawaii	1,211,537	78,061,120	**64.43**
Idaho	1,293,953	52,783,300	**40.79**
Illinois	12,419,293	388,533,600	**31.28**
Indiana	6,080,485	268,372,701	**44.14**
Iowa	2,926,324	101,270,918	**34.61**
Kansas	2,688,418	63,677,725	**23.69**
Kentucky	4,041,769	93,261,857	**23.07**
Louisiana	4,468,976	115,186,181	**25.77**
Maine	1,274,923	54,113,270	**42.44**
Maryland	5,296,486	96,636,614	**18.25**

State	Population (in millions)	Expenditures on Environmental Programs (in millions)	Per Capita Expenditures on Environmental Programs
Massachusetts	6,349,097	112,627,451	17.74
Michigan	9,938,444	400,992,787	40.35
Mississippi	2,844,658	96,347,085	33.87
Missouri	5,595,211	307,503,276	54.96
Montana	902,195	86,994,802	96.43
Nebraska	1,711,263	93,028,158	54.36
Nevada	1,998,257	125,817,190	62.96
New Hampshire	1,235,786	168,375,257	136.25
New Jersey	8,414,350	290,853,213	34.57
New Mexico	1,819,046	N/A	N/A
New York	18,976,457	743,792,550	39.20
North Carolina	8,049,313	344,352,301	42.78
North Dakota	642,200	16,087,612	25.05
Ohio	11,353,140	170,307,896	15.00
Oklahoma	3,450,654	51,667,874	14.97
Oregon	3,421,399	155,483,952	45.44
Pennsylvania	12,281,054	536,303,469	43.67
Rhode Island	1,048,319	68,197,617	65.05
South Carolina	4,012,012	88,684,778	22.10
South Dakota	754,844	89,594,872	118.69
Tennessee	5,689,283	158,243,300	27.81
Texas	20,851,820	504,372,833	24.19
Utah	2,233,169	83,779,712	37.52
Vermont	608,827	37,044,306	60.85
Virginia	7,078,515	166,313,948	23.50
Washington	5,894,121	164,857,444	27.97
West Virginia	1,808,344	161,806,983	89.48
Wisconsin	5,363,675	232,391,413	43.33
Wyoming	493,782	532,223,360	1077.85

Energy Efficiency

Energy efficiency is the second independent variable tested in the research. This variable takes on the values ranging from 0-50. The score represents states' willingness or success in adoption and implementation of energy efficiency policies and programs. Maggie Eldridge, Max Neubauer, Dan York, Shruti Vaidyanathan, and Steven Nadel developed this measurement in the *2008 Energy Efficiency Scorecard*. States were scored in eight policy areas and then ranked according to their total score. The maximum total score states can receive is 50. The eight policy areas are: utility and public benefits programs and policies (max score 20); transportation policies (max score 6); building

energy codes (max score 8); combined heat and power (max score 5); appliance and

equipment efficiency standards (max score 4); lead by example initiatives (state buildings

and fleets) (max score 2); research, development and deployment (max score 2); and

financial and information incentives (max score 3).   The total score for each state will be

used in the multiple regression to test the effects of energy efficiency on states' ranking

on the *2007 Forbes List of America's Greenest States*. Table 4.3 lays out the

methodology for each policy area measured for energy efficiency.

Table 4.4
Maximum Scores for each Policy Category for Energy Efficiency

Policy	Maximum Score
1. Utility and Public Benefits Programs and Policies	20
Spending on Efficiency Programs (electricity)	5
Annual Savings from Efficiency Programs (electricity)	5
Spending on Efficiency Programs (natural gas)	3
Targets (Energy Efficiency Resource Standards)	4
Utility Incentives/Removal of Disincentives	3
2. Transportation Policies	6
3. Building Energy Codes	8
Level of Stringency	5
Enforcement/Compliance	3
4. Combined Heat and Power	5
5. Appliance and Equipment Efficiency Standards	4
6. Lead by Example Initiatives (State Buildings and Fleets)	2
7. Research, Development and Deployment	2
8. Financial and Information Incentives	3
Maximum Total Score	**50**

Source: Eldridge et al. 2008

Level of Liberalism

The level of a state's liberalism is the third independent variable used in the

research project. The variable is constructed as an index. Gray, Lowery, Fellowes, and

McAtee developed an index and used it to measure a state's level of liberalism in their

2004 article, *Public Opinion, Public Policy, and Organized Interests in the American*

States. The index number is policy based and used to measure policy liberalism in the

states. The Gray et al. index score is composed of five state level policy-based issues:

gun control, abortion, welfare eligibility, right to work laws, and progressivity of the tax

structure (Gray et al. 2004). This index number covers social issues and expenditures.

Thus, liberal states have low values and conservative states have high values. The index

number does not include scores from Alaska and Hawaii; therefore, these states are not

incorporated into the regression analysis for liberalism.

Political Culture

Political culture is the fourth, and final, independent variable tested in the

research. This variable is also constructed as an index. Sharkansky (1969) was the first

to develop a political culture index based on Elazar's typology of political culture.

Sharkansky's index assigns each state a culture rating on a scale ranging from 1 to 9. In

Sharkansky's scale, 1 is a pure moralistic culture, 5 pure individualistic, and 9 is a pure

traditionalistic culture. Values between these numbers refer to states with combinations

of culture types. Koven and Mausolff (2002) slightly revised Sharkansky's scale. They

noted that there is a slight variation between each state's score on the political culture

scale and Elazar's summary designation.[31] For purposes of this research, each state's

score was revised again and assigned a 0 or 1 based on its culture. Traditionalistic and

individualistic cultures were given scores of 0, while moralistic states were assigned a

score of 1. Each state's score was subjected to multiple regression analysis to test the

effects of political culture on its ranking on the *2007 Forbes' List of America's Greenest

States*. Table 4.3 shows the breakdown of the political culture index done by

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[31] Koven and Mausolff (2002) also assigned scores for Hawaii and Missouri by averaging the separate culture designations Elazar made on a map of the states in 1966. They grouped the states according to their corresponding culture in the index on the basis of Elazar's summary designation for that state.   For example, states ranging from 1-4 would constitute moralistic states or moralistic states with slight individualistic leanings in certain areas.

Sharkansky, and table 4.4 shows the modified state scores after designating a 1 or 0 to

represent moralistic states or other states.

Table 4.5
State Scores on Sharkansky's Political Culture Scale

Traditionalistic		Individualistic		Moralistic	
Arkansas	9	Hawaii	8.25	Kansas	3.66
Mississippi	9	Missouri	7.66	California	3.55
Georgia	8.8	Delaware	7	Montana	3
South Carolina	8.75	Maryland	7	South Dakota	3
Alabama	8.57	Indiana	6.33	Idaho	2.5
North Carolina	8.5	Ohio	5.16	Maine	2.33
Tennessee	8.5	Nevada	5	New Hampshire	2.33
Oklahoma	8.25	Illinois	4.72	Vermont	2.33
Louisiana	8	Pennsylvania	4.28	Iowa	2
Virginia	7.86	New Jersey	4	Michigan	2
Florida	7.8	Wyoming	4	North Dakota	2
Kentucky	7.4	Massachusetts	3.66	Oregon	2
West Virginia	7.33	Nebraska	3.66	Utah	2
Texas	7.11	New York	3.62	Wisconsin	2
New Mexico	7	Connecticut	3	Colorado	1.8
Arizona	5.66	Rhode Island	3	Washington	1.66
Alaska	6.33			Minnesota	1

Source: Sharkansky 1969
* Alaska pol. culture data taken from S. Spacek, "Do Mess With It!: A Sociopolitical Study of Littering and the Role of Southern and Nearby States" (Applied Research Project, Texas State University, 2004), 110

Table 4.6
Modified State Scores on Sharkansky's Political Culture Scale

Traditionalistic		Individualistic		Moralistic	
Arkansas	9=0	Hawaii	8.25=0	Kansas	3.66=1
Mississippi	9=0	Missouri	7.66=0	California	3.55=1
Georgia	8.8=0	Delaware	7=0	Montana	3=1
South Carolina	8.75=0	Maryland	7=0	South Dakota	3=1
Alabama	8.57=0	Indiana	6.33=0	Idaho	2.5=1
North Carolina	8.5=0	Ohio	5.16=0	Maine	2.33=1
Tennessee	8.5=0	Nevada	5=0	New Hampshire	2.33=1
Oklahoma	8.25=0	Illinois	4.72=0	Vermont	2.33=1
Louisiana	8=0	Pennsylvania	4.28=0	Iowa	2=1
Virginia	7.86=0	New Jersey	4=0	Michigan	2=1
Florida	7.8=0	Wyoming	4=0	North Dakota	2=1
Kentucky	7.4=0	Massachusetts	3.66=0	Oregon	2=1
West Virginia	7.33=0	Nebraska	3.66=0	Utah	2=1
Texas	7.11=0	New York	3.62=0	Wisconsin	2=1
New Mexico	7=0	Connecticut	3=0	Colorado	1.8=1
Arizona	5.66=0	Rhode Island	3=0	Washington	1.66=1
Alaska	6.33=0			Minnesota	1=1

* Alaska pol. culture data taken from S. Spacek, "Do Mess With It!: A Sociopolitical Study of Littering and the Role of Southern and Nearby States" (Applied Research Project, Texas State University, 2004), 110.

Summary of Data

Table 4.7 presents the unit of analysis (state), the states' ranking on the *2007 Forbes List of America's Greenest States* (dependent variable), and the four independent variables: per capita expenditures on environmental programs, energy efficiency, level of liberalism, and political culture.

Table 4.7
Complete State Data

State	Ranking on 2007 Forbes' List of America's Greenest States	Per Capita Expenditure on Environmental Programs (2006-07)	Energy Efficiency Score	Policy Liberalism Index Score	Political Culture Index Score
Alabama	48	12.09	1.5	38	0
Alaska	40	86.35	6.5	N/A	0
Arizona	10	26.89	14	32	0
Arkansas	44	16.32	6	42	0
California	14	37.66	40.5	1	1
Colorado	13	11.79	15.5	19	1
Connecticut	6	38.30	36	5	0
Delaware	30	247.58	10	10	0
Florida	20	77.91	16	47	0
Georgia	29	15.76	7.5	45	0
Hawaii	4	64.43	17	N/A	0
Idaho	12	40.79	21	37	1
Illinois	27	31.28	16	18	0
Indiana	49	44.14	6	28	0
Iowa	35	34.61	19	23	1
Kansas	31	23.69	6	30	1
Kentucky	45	23.07	11	33	0
Louisiana	47	25.77	8	44	0
Maine	25	42.44	16	15	1
Maryland	5	18.25	21.5	12	0
Massachusetts	11	17.74	26.5	4	0
Michigan	24	40.35	6	22	1
Minnesota	15	27.47	26.5	6	1
Mississippi	46	33.87	2	40	0
Missouri	41	54.96	4	21	0
Montana	22	96.43	14.5	8	1
Nebraska	33	54.36	6	26	0
Nevada	17	62.96	17	36	0
New Hampshire	19	136.25	16.5	16	1
New Jersey	7	34.57	25.5	14	0
New Mexico	18		15	11	0
New York	9	39.20	32.5	2	0
North Carolina	26	42.78	13.5	29	0
North Dakota	42	25.05	1.5	46	1
Ohio	39	15.00	16	24	0

State	Ranking on 2007 Forbes' List of America's Greenest States	Per Capita Expenditure on Environmental Programs (2006-07)	Energy Efficiency Score	Policy Liberalism Index Score	Political Culture Index Score
Oklahoma	38	14.97	5.5	34	0
Oregon	2	45.44	37	7	1
Pennsylvania	32	43.67	17	25	0
Rhode Island	8	65.05	23	9	0
South Carolina	36	22.10	9	20	0
South Dakota	21	118.69	2	48	1
Tennessee	43	27.81	3.5	41	0
Texas	34	24.19	16	31	0
Utah	28	37.52	15	39	1
Vermont	1	60.85	33	3	1
Virginia	23	23.50	10	35	0
Washington	3	27.97	32	17	1
West Virginia	50	89.48	5.5	13	0
Wisconsin	16	43.33	26	27	1
Wyoming	37	1077.85	0	43	0

Statistics

Existing data were used to test the four formal hypotheses. A correlation coefficient test was used to test the inter-correlation between variables. A multiple regression analysis was performed to determine the impact of each independent variable on states' ranking on the *Forbes List*. This statistical method was used to analyze the data and determine whether the hypotheses were supported or rejected. A multiple regression analysis was also used to identify the factors that explained the greatest amount of difference in states' ranking on the *Forbes List*. The Statistical Package for Social Sciences (SPSS) was used to run the correlation test and multiple regression analysis.

Correlation Test

The first procedure performed on the data was a correlation coefficient test. A Pearson's product-moment correlation is an appropriate measure of the correlation

between interval variables (for example, age, income, and grade point average) (Babbie 2007). The correlation is always between −1 and +1. As the correlation coefficient moves from zero in either direction, the strength of the association between the two variables increases.

Using the correlation coefficient method to examine the association between dependent variables and independent variables helps to identify which independent variables can be predictors of the dependent variable.

Multiple Regression Analysis

The second procedure performed on the data was a multiple regression analysis. This analysis was conducted to determine the impact of each independent variable on states' ranking on the *Forbes List*. Multiple regression analysis is used to ascertain how a given dependent variable is simultaneously affected by multiple independent variables (Babbie 2007).

The *F*-test was used to test whether the regression model is statistically significant. The adjusted *R* square value shows how much of the variance in the states' ranking is explained by the regression. The *T*-test was used to determine the value of the coefficient for each independent variable and the significance of each independent variable.

Chapter Summary

  This chapter presented the methodology for testing the four hypotheses using a multiple regression analysis to determine if states' rankings on the *Forbes List* are affected by per capita expenditures on environmental programs, energy efficiency, level of liberalism, or political culture. The next chapter discusses the results of the multiple regression analysis.

Chapter 5
Results

This chapter provides the answer to the question: which factors influence a state's ranking on the *Forbes List*? Table 5.1 shows the correlation between the independent variables that could be tested per capita expenditures on environmental programs, energy efficiency, and liberalism) [32] and states' ranking on the *Forbes List* (the dependent variable). Table 5.2 shows the descriptive statistics, and Table 5.3 and Table 5.4 show the results of the multiple regression analysis.

Correlation

Correlation is one criterion for determining causality when comparing two variables. Correlation can identify a relationship between two variables in a study, such that changes in one area signify changes in another, or particular attributes of one variable can be associated with particular attributes of the other (Babbie 2007). Correlations also determine whether multiple regression analysis is an appropriate statistical technique for a particular study.[33] Table 5.1 shows there are significant relationships at the 0.01 level between energy efficiency and states' ranking on the *Forbes List,* and between policy liberalism and states' ranking on the *Forbes List*. There is also a highly significant (-.705**) negative correlation between policy liberalism and energy efficiency. This indicates that liberalism and energy efficiency are negatively related.[34]

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[32] Political culture was excluded from the correlation test because it is not a continuous interval variable. The correlation test is best used to measure the effects of continuous interval or ratio variables (Babbie 2007).

[33] For examples of other Texas State ARPs that use multiple regression analysis, see Neal 2002 and Doehrman 2007.

[34] Lower scores on the liberalism index indicate that the state is more liberal. States that are more energy efficient should see their score improve on the index—thus, their score should be lower. Since liberal scores are represented by lower numbers and energy efficient scores by higher numbers, more liberal states should be more energy efficient and vice versa. This delineates a negative relationship.

Table 5.1[35]
Pearson Correlation Among the Variables

	1.) Ranking on *2007 Forbes List of Am. Greenest States*	2.) Per capita expenditures on environmental programs (2006-07)	3.) Energy efficiency score	4.) Policy liberalism score
1.) Rank	1.00			
2.) Expend. per capita on environmental programs	.095	1.00		
3.) Energy efficiency	**-.790****	-.222	1.00	
4.) Liberalism	**.558****	.139	**-.705****	1.00

*significant at α < .05
**significant at α < .01

Table 5.2
Descriptive Statistics

Variables	Range	Mean	Median	Standard Deviation
Forbes ranking (DV)	1-50	25.5	25.5	14.57
Energy efficiency	0-40.5	15.05	15.0	10.32
Liberalism	1-48	24.5	24.5	14.0
Per capita expenditures on environmental programs	11.79-1077.85	67.81	37.59	152.56

Multiple Regression Results

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[35] Political culture is not included in the Pearson correlation because this variable is not a continuous interval variable (it is a nominal variable). Pearson correlation measures the relationship between continuous interval variables or ratio variables (i.e., height, weight, age, and income) (Babbie 2007).

Table 5.3 displays the results of the multiple regression analysis that tested the influence of per capita expenditures on environmental programs, energy efficiency, level of liberalism, and political culture on states' ranking on the *Forbes List*. The adjusted *R* square reveals that nearly 64% of the variation in the ranking on the *Forbes List* is explained by the three variables. The significance of the *F* statistic at 21.183, distinguishes a linear relationship between states' rankings and the four independent variables (see Table 5.4).

The table shows that of the four independent variables, only energy efficiency significantly affected states' rankings on the *Forbes List*. Thus, the only variable with a net independent effect on a state's ranking is energy efficiency (*b*= -.806). The energy efficiency value is significant, which indicates that the hypothesis that a states' level of energy efficiency negatively affects a state's ranking on the *Forbes List*.[36] Per capita expenditures on environmental programs, level of liberalism, and political culture are not statistically significant.

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[36] This negative, counterintuitive relationship reveals that as energy efficiency increases, a state's ranking number is improved (or is lowered) on the *Forbes* index. Thus, the more energy efficient a state becomes, the greener a state becomes.

Table 5.3
Multiple Regression Results

Independent Variables	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	45.432	5.720		7.942	.000
Per capita expenditures on environmental programs (2006-07)	-.008	.008	-.091	-.993	.326
Energy efficiency score	-1.107	.181	-.806	-6.098	**.000**
Policy liberalism index score	-.033	.131	-.032	-.249	.804
Political culture index score	-3.958	2.780	-.133	-1.424	.162

*Dependent Variable: Ranking on *2007 Forbes' List of America's Greenest States*

Table 5.4. Multiple Regression Summary Statistics

R	R Square	Adjusted R Square	Std. Error of the Estimate	F
.818[a]	.669	**.637**	8.73928	**21. 183**

Chapter Summary

This chapter discussed the results of the multiple regression analysis. The results showed that only one of the independent variables, energy efficiency, significantly affected states' ranking on the *2007 Forbes List of America's Greenest States*. The next chapter discusses conclusions drawn from this study. The chapter summarizes the findings of the research, future possible research topics in this area, and strengths and weaknesses of this study.

Chapter 6
Conclusions

The purpose of this research was to determine factors affecting states' ranking on the *2007 Forbes List of America's Greenest States*. The *2007 Forbes* ranked each state's status in their attention to environmental standards. The *Forbes List* ranked each state with regard to policies and programs in the areas of carbon footprint, air and water quality, waste management, and energy consumption. Each category was equally weighted and based on "carbon footprint, air quality, water quality, hazardous waste management, policy initiatives and energy consumption" (Wingfield and Marcus, 2007, 2).

This ranking system serves as a useful tool to compare states that rank at the top on the green scale and those that rank at the bottom. States that had a lower ranking number on this list produce low levels of carbon emissions; follow the existing guidelines (as well as updated policies by the EPA) in areas of air, water quality, and waste management; and produce policies geared at innovative technologies to cut down on energy consumption, greenhouse gases, and pollution.

This research project discussed factors that may have contributed to a state's ranking on the *2007 Forbes List of America's Greenest States*. Chapter 1 of this study introduced the research topic. Chapter 2, "Policy Setting," described the background of environmental policy throughout the past few decades at the federal and state level of government, as well as during presidential administrations. Chapter 3, "Literature Review," discussed the scholarly literature that supported four factors that may contribute to a state ranking higher or lower on the *Forbes List*. The four factors supported by the literature are per capita expenditures on environmental programs, energy efficiency, level

of liberalism, and political culture. Chapter 3 also presented the conceptual framework

and the four formal hypotheses used in the research. The four formal hypotheses were:

H¹: There is a negative relationship between expenditures per capita on

environmental programs and states' ranking on the *2007 Forbes List of America's*

Greenest States.

H²: There is a negative relationship between states' level of energy efficiency

and a state's ranking on the *2007 Forbes List of America's Greenest States*.

H³: Level of liberalism positively influences a state's ranking on the *2007 Forbes*

List of America's Greenest States.

H⁴: States with a moralistic political culture should rank lower on the *2007*

Forbes List of America's Greenest States.

Chapter 4, "Methodology," introduced the steps taken to test the four formal

hypotheses. A multiple regression analysis evaluated the existing data to determine if the

four factors affected states' ranking on the *2007 Forbes List of America's Greenest*

States.

Chapter Five, "Results," presented the results of the multiple regression analysis.

The results showed that (H1): per capita expenditures on environmental programs, (H3):

level of liberalism, and (H4): political culture had no influence on a state's ranking on the

2007 Forbes List of America's Greenest States. There was, however, a relationship

between (H2): energy efficiency and a state's ranking on the *Forbes List*. The

relationship between energy efficiency and a state's ranking on the list was negative.

This counterintuitive, negative relationship indicated that the greater/higher the energy

efficiency score, the lower the green score—that is, the better the green ranking. There is

also a highly significant and negative relationship between policy liberalism and energy efficiency.[37]

This study was useful in determining what factors affect states' ranking on the *2007 Forbes List of America's Greenest States*. By studying the factors that determine a state's ranking and evaluating factors that influence states' commitments to being green, policymakers, scholars, researchers, and the informed public can better understand the factors that contribute to a state's maintenance and adoption of environmental policies and programs.

Suggested Future Research

This research reviewed factors affecting states' ranking on the *2007 Forbes List of America's Greenest States*. One suggestion to extend this research is to evaluate states' ranking based on state government's attention to health policy and their per capita expenditures on health care. Doehrman (2007) argues that states that engage more of their policy priorities in the areas of health care are also those that spend more of their resources on the environment, welfare, and social concerns.[38]

Another suggestion would be to study the states based on region. Political culture is often studied by region by various scholars.[39] Variations in political cultures among the states can be attributed to many different social and economic forces. Urbanization, industrialization, population movement, affluence, and economic growth probably have the most substantial consequences in terms of interstate politico-cultural differences (Patterson 1968). Spacek (2004) concludes that a state's location within the country, or geographic region, determines environmental quality in each state. He argues that the

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[37] Lower scores in the liberalism index indicate more liberal states; higher scores in the energy efficiency index indicate more energy efficient states; and lower ranking (number) on the *Forbes List* indicates a more green state.
[38] For a Texas State ARP that deals with health policy, see Doehrman 2007.
[39] For examples, see Patterson 1968; Luttbeg 1971; and Bacot and Dawes 1997.

geographic location of a group of states is expected to affect a state's standing on environmental degradation determinants (Spacek 2004, 47). He also maintains that the states in geographic locations (southern states) prone to low environmental quality coincide with higher levels of minority populations, lack of educational attainment, and low voter turnout (Spacek 2004). In a similar study, Bacot and Dawes (1997) found that southern states spend less on the environment than their counterparts in the rest of the nation. Extending this study to incorporate a regional analysis[40] would allow a researcher to identify and better understand regional impacts on environmental policy.

A further suggestion on the issue of political culture would be to measure political culture using religious census data. Most attempts at measuring political culture, including the one used in this study, use a unidimensional scale.[41] Since Elazar considers political culture to be heavily bound in the migration patterns of various ethnic and religious groups in the United States, states can be categorized based on religious affiliations of the members of the migration streams during certain years.[42] Using religious affiliation census figures as indicators of various political cultures does not imply that there is necessarily a "causal relationship" between the beliefs of the various religions and the values identified in the cultural system (Johnson 1976, 492). Rather, religious affiliation census data can be used as "tags" for various political cultures. Religious denominations can be used to trace migration streams and to identify the strengths of various political cultures in the states.[43] Johnson (1976) used an index based on census data from 1910, 1920, 1930, and 1941. Morgan and Watson (1991) continued

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[40] For an ARP that deals with regional studies, see Spacek 2004.
[41] See, for example, Sharkansky 1969 and Luttbeg 1971.
[42] See, for example, Elazar 1966; Johnson 1976; and Morgan and Watson 1991.
[43] See, for example, Johnson 1976; and Morgan and Watson 1991.

this study by updating census figures with 1980 religious affiliation data. Religious

affiliation data are a useful and more up-to-date proxy for studying Elazar's formulation.

Lastly, religious group data could also be used to further study the issue of

environmental policy by region. Support for the environment and policies aimed at

environmental protection cuts across virtually every religious group, from white

Evangelicals to Jews (Pew Forum 2004). As recently as 2004, the *Pew Forum* focused a

study on environmental policy across faith traditions. They found a fairly strong

consensus across the various traditions. Nevertheless, they discovered that conservative

Christians and some minorities are not quite as supportive of environmental regulations

as are others (Pew Forum 2004). This study could be woven together with political

culture to better understand the environmental attitudes in certain areas. There could be

more research done to determine where, by region, these religious groups are

predominantly located, and then tested to see if certain religious traditions affect a state's

propensity to greenness.

Strengths and Weaknesses of Data

This research provides information about factors affecting states' ranking on the

2007 Forbes List of America's Greenest States. As with all human research, there are

weaknesses associated with this study. The collection of existing data provided the

necessary information to perform the multiple regression analysis. One weakness with

using existing data for this study is that some of the data are incomplete and outdated.

The level of liberalism index did not provide scores for Hawaii and Alaska, leaving out

data results for two states. This left the regression with 48 states to analyze versus the

normal 50. The data for New Mexico on per capita expenditures on environmental

programs were also not provided in the research. The data for per capita expenditures on

environmental programs was also slightly outdated, available only as recently as 2007 for

some states. Lastly, the measurement used to study political culture was based on 1969 data. Outdated scores are also a threat for analysis of existing data. It is important to find data that are relevant to the time period and dates of the research when locating existing data for study.

There are also strengths associated with using existing data for research purposes. Researchers can focus their study on a specific region, area, or population by simply eliminating the data they do not wish to use. This research limits the data to be focused on the states' ranking on the *2007 Forbes List of America's Greenest States*. This type of research is also inexpensive, requires no human subjects, and allows for a study of trends and historical events.

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