Getting Greener

Progressive Environmental Ideas for the American South

L. Edward Moore
for the Center for a Better South

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Doing Better
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Introduction

It took a Southerner, Al Gore, to make Americans reconnect with the environmental movement.

"The planet has a fever," Gore testified to Congress in March 2007. "If your baby has a fever, you go to the doctor. If the doctor says you need to intervene here, you don't say, 'Well, I read a science-fiction novel that tells me it's not a problem.'"

The testimony was the culmination of years of showing his now-famous PowerPoint presentation seen by hundreds of audiences across the world. With it—and the Oscar-winning film, *An Inconvenient Truth*—Gore almost single-handedly brought the threat of global warming into Americans' consciousness.

It wasn't easy. For more than a generation, the environmental movement got sidetracked from its heyday of success in the late 1960s and early 1970s. After Rachel Carson's *Silent Spring* (1962) alerted people to the danger of pesticides and activists turned back efforts to dam scenic places like the Grand Canyon (1966-68), Americans connected with the outdoors in new ways. The first Earth Day, for example, was in 1970.

Congress responded by passing a dizzying array of measures to better protect the environment:

- National Wild and Scenic Rivers Act (1968)
- National Environmental Policy Act (1969)
- Environmental Protection Agency created (1969)

- Clean Air Act (1970)
- Water Pollution Control Act (1972), or Clean Water Act
- Coastal Zone Management Act (1972)
- Marine Mammal Protection Act (1972)
- Ocean Dumping Act (1972)
- Endangered Species Act (1973)

While there continued to be periodic successes in the years that followed, the steam seemed to get sucked out of the environmental movement. As it splintered into factions, the country faced energy realities with the energy crisis of the mid-1970s. Instead of responding with innovation, more research and new ideas to fuel the American economy, the country meandered through the crisis, only to become more dependent on fossil fuels.

Many environmentalists agree that the movement's last big success was passage of the Endangered Species Act in 1973, which was upheld four years later by the U.S. Supreme Court. Until Gore's call to action with *An Inconvenient Truth*, the face of environmental policy was fractured. But through the persistence, grace, charm and insistence of Gore and his allies, America finally took notice. Now, the environmental movement across the country has new energy.

The South's green challenge

Over the next generation, millions of Americans will continue to move into the Sunbelt. The South will face new challenges of development and infrastructure pitted against traditional uses of land and Southerners' heritage with fields, mountains, rivers, streams, marshes and forests.

The Center for a Better South believes it is time for Southern lawmakers to respond to the coming challenges and work to develop progressive environmental policies that will allow our society and nature to interact in coming years without destroying the link between the outdoors and the region's quality of life.

Getting Greener: Progressive Environmental Ideas for the American South presents a list of strong, fundamental ideas generally applicable across the region. These are not newfangled policies. Rather, they are basic, proven approaches outlined in the context of the specific needs of Southern residents, businesses and governments. Our goal is to make these ideas tangible and accessible for Southern policymakers so they can meet the environmental challenges the region is facing.

In this book, you'll learn how Southern states can:

- Respond more effectively to climate change.
- Enact tougher requirements than federal standards to clean up air pollution from coal-fired power plants.
- Save huge amounts of energy—and reduce the need for more power plants—by enacting practical efficiency measures that won't impact people's lives adversely.
- Take steps to promote use of cleaner cars, which will greatly reduce consumption of fossil fuels.
- Set the example by building more energy-efficient schools and buildings.

- Promote conservation of special Southern places around the region to protect our landed heritage.

- Practice environmental justice in new and more equitable ways.

- Take immediate practical steps to cut energy consumption and make their homes greener.

A better way

The Center for a Better South is a pragmatic, non-partisan think tank dedicated to developing progressive ideas, policies and information for thinking leaders who want to make a difference in the American South. It is crafted in the spirit of the LQC Lamar Society, which was started in 1969 to "trap and disseminate good ideas before they were lost in the journals of professional and learned societies … it would be a catalyst which actually made things happen," as Alabama publisher H. Brandt Ayers wrote in 1971.

We believe the Center for a Better South serves a similar function today—to develop, discuss and spread good ideas to all Southern leaders to move the region forward. If we want to maintain our republican system of democratic representative government, and if we want to ensure all Southerners can pursue the freedoms they're guaranteed, then we have to ensure government's framework is strong enough to make things happen. In doing so, Southerners will be able to achieve individual goals and, perhaps, their Southern dreams.

As noted throughout this book, every Southern state is advancing environmental leadership in some way, and some are doing so in many ways. But without a broader effort to meet the most basic environmental challenges, we won't make a growing South greener. Only by doing something fresh can Southern leaders ensure that we continue to live in a region that respects the land we love while continuing to grow responsibly. These ideas are offered as a way to move forward.

— Andy Brack
Chairman and President
Center for a Better South, Charleston, S.C.
August 2007

Getting Greener

Progressive Environmental Ideas
for the American South

BETTER CLIMATE

Confronting global warming in the South

Each Southern state and local government immediately should confront global warming by developing and implementing a plan to reduce carbon emissions and protect their interests.

It's the middle of December in a large Southern town. Outside, people are in shorts. It's in the upper 70s. At a similar time just a few years back, you wouldn't have left the house without at least wearing a sweater.

Southerners know in their bones that global warming, or the euphemistic "climate change," exists. Despite what the few remaining naysayers spout, it's clear something significant is happening.

Southerners, in fact, have special reasons to tackle global warming. Our summers are already hot. Our coastlines are already vulnerable to hurricanes. And our economies include strong tourism, real estate, forestry and agriculture sectors. Higher temperatures mean more rain, but likely drier soils since heat speeds evaporation. Greater heat and precipitation equals more extreme weather events. In the future, natural systems and the industries that depend on them, such as tourism, real estate, agriculture and forestry, will face major changes:

- **Getting hotter.** The Union of Concerned Scientists estimates that on the Gulf Coast of Florida, Alabama, Mississippi and Louisiana, the already-high July heat index, which reflects the "felt" combination of temperature and humidity, could rise by 10-25 degrees.[1]

- **Lower yields.** South Carolina's Department of Natural Resources reports agricultural production could drop by 80 percent as an already-warm growing season overheats and profitable farming moves north.[2]

- **Floods.** Along the North Carolina coast, rising sea levels could easily flood an area the size of the Smoky Mountains National Park.[3]

- **Shrinking habitat.** From Virginia and Kentucky south to Georgia and Alabama, warmer weather could eliminate up to 90 percent of Appalachian headwater habitat for brook trout.[4]

- **Insurance.** Coastal areas already face higher-cost—or disappearing—property insurance options due to increased hurricane activity. Florida's state-created insurer, Citizens Property Insurance Corporation, ran a deficit of $516 million in 2004. These deficits were repeated in Louisiana and at the national level with the National Flood Insurance Program, which ran a $23 billion deficit in 2005.[5]

- **Smog.** The warming trend will also worsen air pollution, increasing the average number of summer unhealthy air days by 60 percent by mid-century, according to one study.[6] Among cities studied, asthma hospital admissions of people under 65 and mortality from elevated ozone would rise most in Louisville, Kentucky.

Other nations, states, businesses move forward on global warming

The states in the American Northeast and West, as well as nations in Europe, have taken significant action to respond to global warming:

- Eight Northeastern states have developed an interstate cap-and-trade program that will cut industrial global warming emissions by 10 percent by 2019.[7] Maryland will join that program this year.[8]

- Of the 11 continental states west of Texas, eight have either completed a climate change plan with specific emissions reduction goals or are now completing one.[9]

- California has set ambitious overall global warming emissions reduction targets and has required that lower-carbon fuels such as biodiesel make up an increasing share of motor vehicle fuels.

- The European Union parliament adopted a carbon emissions trading plan in 2003 which took effect in 2005.[10] Innovators there who can reduce carbon emissions sell pollution "credits" to those who need to pollute, such as power companies for around $20 per ton of carbon dioxide reduced. A voluntary U.S. market currently pays around $4 per ton for activities such as planting trees or changing agricultural tilling practices.[11] Additionally, leaders in the business and scientific communities — from insurance companies to water supply specialists to the global retailer Wal-Mart — have decided they must act now to avoid further environmental damage and economic

losses and adjust to market realities. Why? Because business leaders know they'll also get cost-savings and other benefits from reducing global warming emissions.

For example, Arkansas-based Wal-Mart, the world's largest private-sector user of electricity, has developed new prototype retail stores that will be 30 percent more energy efficient.[12] The company has already saved $25 million in fuel costs and prevented 100,000 metric tons of carbon dioxide emissions by reducing idling among its fleet of trucks. Weyerhaeuser, the international forest products company that owns or leases over 3.6 million acres of forests in Arkansas, Alabama, Louisiana, Mississippi and North Carolina, has committed to reduce global warming emissions from its operations by 40 percent below year 2000 levels by 2020.[13]

North-Carolina-based Duke Energy, the nation's third largest coal-fired power plant operator, states that "[i]f we had our druthers, we'd already have carbon legislation passed," according to Vice President John Stowell.[14] Duke acknowledges climate change is happening and governments will respond, so it wants to know what the rules will be as soon as possible so that it can make sound investment decisions.[15]

Southern governments are behind the curve

At least eight U.S. states encompassing more than 80 million people have completed comprehensive climate change plans that include quantified legislative action items to reduce climate change emissions. At least four other states are working on such plans.[16]

Southern state legislatures are behind the curve in requiring development of such comprehensive, quantified plans. While some state agencies have taken the initiative to develop modest plans, Southern legislatures outside of North Carolina and Florida generally have not signaled a desire to receive and implement a comprehensive action plan with goals and timetables developed through a broad stakeholder process.

In 2005, the North Carolina legislature created a Legislative Commission on Climate Change, which received its first recommendations for action in early 2007 and should receive a comprehensive plan by the fall of 2007.[17] In 2006, the Florida legislature tasked the state's Energy

World's top CO_2 emitters

(Each U.S. state is treated as a country)

Rank	Nation/State	CO_2*
1	China	3451.6
2	Russian Federation	1544.1
3	Japan	1220.9
6	Texas	759.8
10	California	463.2
26	Florida	266.0
32	Louisiana	199.4
34	Netherlands	179.8
35	Georgia	178.2
36	Kentucky	169.7
37	North Carolina	167.8
39	Alabama	159.0
40	Kazakhstan	149.9
41	Tennessee	143.6
42	Venezuela	142.9
43	Virginia	141.4
65	South Carolina	88.1
66	Nigeria	85.7
70	Arkansas	81.7
71	Mississippi	81.1
72	Philippines	74.1
73	Korea (North)	73.8
77	Austria	69.0
	United States of America (50 states)	5728.3
	European Union (25 countries)	3927.6

Source: Climate Analysis Indicators Tool at World Resources Institute, 2001

** Millions of tons*

Commission with developing a specific plan including broad public involvement by the end of 2007.[18] In early 2007, the Arkansas legislature was considering legislation to form a state climate change commission that would create a recommended plan in time for the next meeting of the legislature. Also in 2007, South Carolina Gov. Mark Sanford called for a blue-ribbon panel to make recommendations to the state for ways to curb global warming.

There are two big reasons for Southern states to take quick, comprehensive action at the legislative level.

First, Southern state global warming emissions have worldwide significance. In a comparison of individual states in the United States to countries around the world, 34 states are among the world's 75 largest global warming gas emitters.[19] **Every Southern state is on this list.**

Kentucky, for example, produces more global warming gases than the nation of Austria, even though Austria's population and economy are approximately twice as big.[20] The state of Georgia and the Netherlands produce about the same amount of global warming emissions, but the Netherlands has 7 million more people and an economy more than 50 percent bigger.[1]

The fact that European nations with larger populations and larger economies than most Southern states emit less global warming pollution suggests Southern states can cut global warming emissions far below current levels while still growing their economies.

A second major reason Southern states may want to move more quickly on curbing global warming is to protect and manage its

interests and assets. One state, for example, may have forests or a large swine industry as economic drivers while another may rely heavily on automobile manufacturing, coal production or international shipping. At the same time, they may have untapped potential energy sources, such as wind or biomass resources, that could be used to reduce impacts of global warming.

Regardless of any state's economic drivers, responses to global warming by outside forces, such as the federal regulatory or global business environments, may significantly impact the state's core industries and assets —unless the state steps up to respond to opportunities and threats. In other words, if a state doesn't take proactive steps to respond to climate change, outside forces may take actions that will undercut an industry in the state. Therefore, it is in a state's best interest to evaluate its situation on global warming and chart an advantageous course so it is not put at a competitive disadvantage.

Southern states can cut global warming pollution and grow their economies. Just look how European nations with larger populations and larger economies have less global warming emissions.

Arizona recommends changes

Arizona is an example of a state taking a proactive approach to climate change. It recently completed a climate change plan including 49 specific recommended actions that would cut global warming emissions in half by 2020. Some of these actions would create costs and others would create savings, but the package as a whole would save an estimated $5.5 billion

over the initial 13 years of implementation. Examples of actions recommended in the Arizona greenhouse gas reduction plan include:[22]

- Giving builders incentives to exceed building code energy efficiency requirements.
- Requiring that electric utility companies obtain an increasing share of power from renewable sources such as wind and solar energy.
- Adopting clean car regulations that reduce pollution and increase fuel efficiency.
- Promoting pay-as-you-drive car insurance.
- Reducing truck and bus idling by providing electrical hook-ups at truck stops and other steps.

Each of these policies would remove between 10 and 100 million metric tons of carbon dioxide from the air in Arizona; most would also reduce consumer costs due to reduced energy use.[23]

By April 2007, Arizona Gov. Janet Napolitano was moving quickly to implement portions of the Arizona Climate Change Action Plan through executive order. The state also had changed procurement policy so that it only bought high-efficiency vehicles. It was also developing a greenhouse gas emissions registry to use as part of an interstate cap-and-trade system.[24]

North Carolina's plan in progress

Early recommendations and studies from the technical advisory group for North Carolina's Legislative Commission on Climate Change show how a Southern state can capitalize on homegrown opportunities. North Carolina's Commission is paying particular

attention to economic opportunities being generated by emerging markets in carbon reduction, renewable energy production and global warming reduction technology.

For instance, one study for the Commission estimates if the swine industry in the Tarheel State were to use available technology to generate electricity with waste methane, it could earn $50 million per year in emerging carbon reduction markets. Farmers could earn another $50 million for selling the electricity generated from waste methane. And it's not something that's pie-in-the-sky: Canadian and Japanese power companies already are paying the pork industry in Chile for better methane management to reduce global warming.[25]

Either Southern states can sit on the sidelines and not respond proactively to global warming, or they can start to plan their destinies by dealing with it.

North Carolina's developing plan also shows how policies can affect different states differently. While Arizona's climate change plan estimates that requiring electric utilities to generate an increasing percentage of power from renewable energy would cost about $6 per ton of reduced global warming emissions, North Carolina's advisory group has determined that a similar requirement in North Carolina would save consumers almost $13 per ton of reduced emissions.[26]

Overall, technical projections show implementation of the North Carolina climate change reduction plan would turn back the clock on global warming pollution in the state by 30 years, reducing total emissions in 2020 almost to 1990 levels.[27] Without action, total emissions during that period will more than double.[28]

Southern cities get into the act too

Mayors of 67 Southern cities, home to more than 7.5 million people, also have joined a nationwide network of over 300 cities committed to greenhouse gas reduction.[29] And they're making a difference. For instance, Miami Mayor Manny Diaz convened a conference of environmental architects in January 2007 to discuss requiring much higher-performance buildings as part of the city building code.[30] Durham and Orange counties in North Carolina have jointly developed an inventory of greenhouse emissions, the first step towards a comprehensive reduction plan.[31] In South Carolina, Columbia's Mayor Bob Coble switched vehicles from a large SUV to a hybrid Ford Escape.[32] He noted, "The buildings that cities own need to be green buildings in the future. The automobiles that cities drive need to be hybrids or others that try to reduce emissions."[33]

Local governments are important in the fight to control carbon emissions because they generally oversee three issues—land use, transportation planning and enforcement of building codes—caused by driving and by energy use in buildings. *(For a list of mayors and cities that are working to confront global warming, see Appendix 1.)*

These mayors have decided to take action locally partly because local government has a role to play, but also because of inadequate federal and state leadership.

As an old saying goes, "If the people will lead, the government will follow." Individual citizens are ahead of many governments in supporting action to combat global warming. Of adults polled nationwide, 83 percent think global warming is a very serious or somewhat serious problem for the United States.[34] Fifty-eight

percent of adults believe global warming is already happening, and another 20 percent expect global warming effects either in the next few years or during their lifetimes.[35] Sixty-two percent believe governments can do a great deal or a good bit about it.[36] Seventy percent believe the government should do more to fight global warming, while 7 percent believe the government should do less. Only 1 percent believes governments can do nothing.[37]

States should confront climate change now

When nations, major states, Southern cities and major regional private-sector employers begin changing investment decisions and policies to combat global warming, and when adults nationwide believe it is a serious problem by over 3 to 1, it is high time that Southern state governments take the issue seriously.
At the most basic level, Southern states should set a framework for state action by taking the following two legislative steps:

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Recommendation 1: Each Southern state should designate a leadership body on global warming to develop a statewide global warming emissions reduction plan.

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The legislature of every Southern state should designate an agency to develop and implement a comprehensive global warming emissions reduction plan. Some major individual actions within such plans—such as promoting energy efficiency in buildings and cars—are also important for many reasons other than global warming, and are addressed separately in other chapters of this book. But states should develop a broader plan

that helps avert the severe consequences of climate change, protects their residents' interests and takes advantage of opportunities within the emerging global carbon market. This plan should include data describing each state's unique global warming footprint and establish specific overall emissions reduction goals and effective implementation requirements. The legislation should request that this plan be presented to the legislature for action by a date certain.

Recommendation 2: Each Southern state's global warming emissions reduction plan should establish a target reduction that at least reduces emissions to 1990 levels by 2010 and 10 percent below that level by 2020.

Each state's plan should include a global warming emissions reduction target to reduce emissions at least to 1990 levels by 2012 and 10 percent below those levels by 2020. These levels will roughly bring states within the goals of the international Kyoto Accord treaty on greenhouse gas reduction, which is supported by 141 nations. Such targets have already been chosen by five of the seven states elsewhere in the nation that have set targets.

National and global climate change strategies are creating a new climate for business and government alike, whether Southern states choose to take action. North Carolina and Florida have started to take control of their futures in the context of national and international action on climate change, taking into account their specific characteristics and opportunities. Other Southern states, such as South Carolina and Arkansas, are taking steps in

this direction. Several Southern states completed initial global warming assessments pursuant to U.S. EPA grants in the late 1990s, but these efforts did not result in binding targets or recommendations enacted by their legislatures.

Climate change is a big enough issue that its effects deserve comprehensive planning, goal-setting and implementation with state legislative buy-in and guidance at each stage of the process. To protect their own interests and to look for opportunities, Southern states owe it to themselves and their people to convene stakeholders, analyze what is occurring and promote state-specific solutions.

N.C. farmers could earn up to $100 million from carbon-reduction strategies in converting hog waste to electricity.

Status of Southern legislative initiatives

Southern states have a long way to go with legislative initiatives to help confront global warming. As of April 2007, three states—Arkansas, Florida and North Carolina—had comprehensive global warming agencies or commissions. No Southern states had set specific targets for a greenhouse emissions reductions policy: Here is where some Southern states stand:

Alabama: Alabama completed a global warming assessment and plan in 1997, pursuant to a U.S. EPA grant. This plan included a valuable assessment of major industries, but no quantification of emissions reductions for different elements of the plan, and no overall emissions reduction goal.

Arkansas: Legislation to create a state climate change commission that would recommend actions to the state

legislature within two years is being considered in the 2007 legislative session.

Florida: In June 2006, legislation established the Florida Energy Commission. Among other things, it was charged with recommending steps and a schedule for the development of a state climate action plan through a public involvement process to reduce greenhouse gas emissions.[38] Further legislation creating a specific Climate Change Commission was being considered during the 2007 session.

Georgia: Legislation was introduced in 2007 to create a House Study Committee on climate change.

Kentucky: Kentucky completed a global warming assessment and plan in 1998, pursuant to a U.S. EPA grant.

Louisiana: Louisiana established a legislative study commission on climate change that was charged with exploring voluntary emissions reductions. It was not required to develop a comprehensive plan or to set goals and timetables, and its recommendations have not been implemented.

Mississippi: Legislation to create a climate change action plan died in committee as of early 2007.

North Carolina: The state's Legislative Commission on Climate Change is expected to produce a final action plan in 2007. But even before publication, studies and preliminary recommendations to the Commission were positively affecting the state's energy future. For example, one study determined that renewable energy programs could meet 5 percent of near-term

power needs more cost-effectively than new fossil fuel capacity, and that renewables plus efficiency programs could save residents a half billion dollars over 20 years.[39]

South Carolina: A state-sponsored initial assessment was underway in 2007.

Tennessee: Tennessee completed a global warming assessment and plan in 1999, pursuant to a U.S. Environmental Protection Agency grant.

Virginia: By April 2007, the Virginia legislature had not created a comprehensive climate change commission.

Talking points

- Global warming is real. The South is getting hotter. Farmers are experiencing lower crop yields. Wildlife habitat is shrinking. Smog is increasing.

- Other nations, states and businesses are rethinking how they operate to confront climate change. Not only are they finding savings by adopting new strategies to deal with global warming, they're discovering new ways to do things better for taxpayers and stockholders.

- But Southern state governments are behind the curve in many ways.

- It's important for them to reduce global warming emissions because they are among the top greenhouse gas emitters in

the world. And if they don't confront realities from global warming, they're likely to be left behind – and left to market rules and conditions decided by others.

- As a key step, each Southern state should develop a statewide leadership organization to draft a global warming emissions reduction plan. Then they should set aggressive levels to reduce emissions soon.

- Climate change is a big enough issue that its effects deserve comprehensive planning, goal-setting and implementation. State legislatures need to be on the forefront of guiding solutions.

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BETTER AIR

Cleaning-up Southern air pollution

Southern states should reduce coal-fired power plant pollution ahead of federal deadlines and promptly tackle the scourge of diesel particulate pollution.

Making air better across America through regulation of air pollution has been one of the country's greatest environmental success stories over the last two generations. Even though the U.S. population and economy have grown enormously since passage of the 1970 Clean Air Act, the core pollutants regulated by the Act have dropped 30 percent to 70 percent from 1970 to 2000.[1] Big improvements came from making cars more than 90 percent cleaner and by requiring industry to put pollution controls on smokestacks.[2]

Adults breathe about 3,400 gallons of air per day, according to the American Lung Association. Even small levels of impurities can affect humans greatly.

But much remains to be done. Even small levels of impurities in the air can enter the lungs and, through them, the bloodstream, which affects heart and lung functions. In addition, because children breathe more than adults relative to their size, young developing lungs are even more affected by air pollution.[3] Among modern-day challenges:

Poor Southern air quality. The American Lung Association recently gave an "F" air quality grade for smog-forming nitrogen oxide pollution in more than 80 communities in Alabama, Arkansas, Georgia, Kentucky, Louisiana, North Carolina, South Carolina, Tennessee and Virginia. The remaining Southern states, Mississippi and Florida, had several communities that scored "D."[4]

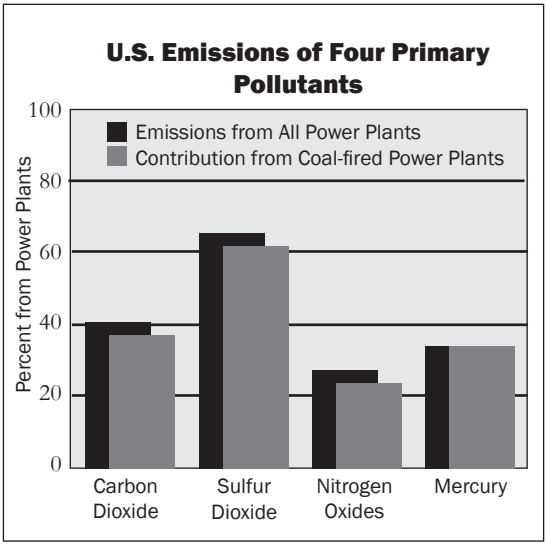
Health problems. The effect of this bad air on obese people with heart problems and diabetes is particularly alarming because they tend to be more affected by air pollution. In the bad-air portions of Southern states, those with heart problems alone number more than 12 million.[5]

Foul urban air. These days, urban air in some areas across America either fails basic federal standards or is very close to the line. Even where localities meet the standards, they are often too weak to protect human health.[6] Also, some particularly dangerous pollutants are too localized to be controlled by standards that apply generally to the region.

Pollution controls. Old, pre-1970 power plants still need major upgrades to meet modern standards. Many types of diesel engines, including those in trucks, buses, construction equipment, garbage trucks, locomotives, and seaport ships and equipment, also lack modern pollution controls.

Particulates and toxics. While smog remains a serious problem, a mounting body of research shows that tiny "particulates" produced mainly by power plants and diesel engines are the worst current air quality threat.[7] Also, mercury, a very toxic metal emitted in smaller quantities, is a serious concern because it affects child development and persists for decades in the environment.

Southern states should promptly assess and implement every opportunity to reduce smog, particulates, and air toxics, such as mercury. In fact to get better air, they should move more quickly than basic federal rules, some of which have been watered down during years of industry political resistance. With innovative leadership, Southern states could boast among the highest levels of economic growth in the country, vibrant wildlife and natural resources, *and* the cleanest air.



Coal-fired power plants generate air problems

Coal is the most polluting way to produce electric power.[8] While coal provides about half of electricity generation nationally, it accounts for 90 percent of power plant pollution.[9]

The South is particularly dependant on coal for electric power. Southern states rely on coal for between 40 percent and 90 percent of electricity generation. New plants are on the drawing board in every Southern state except Alabama.[10]

A recent national scientific analysis estimated that particulate emissions from coal-fired power plants and from diesel engines kill 24,000 people per year.[11] According to Abt Associates, which studied the issue for the U.S. EPA, 90 percent of these deaths

could be prevented with existing pollution control technology.[12] Particulate emissions from power plants and vehicles (another 21,000 deaths per year) kill about as many people nationwide as automobile wrecks.[1]

Smog-forming emissions add to the problems caused by particulates, especially affecting those with asthma and other respiratory diseases. The number of trips to the hospital for particulate-caused asthma and non-fatal heart-attacks is much higher.[14] Many localities currently barely meet the federal standards for smog, but researchers continue to show that the federal smog standards aren't tough enough.[15] Lowering smog limits by a little more than 15 percent would avoid half the estimated smog-related deaths nationwide.[16] But since so many communities are already close to being out of compliance, this could double or triple the number of regions that potentially would violate federal rules.[17]

Lowering smog limits by just 15 percent would cut the estimated number of smog-related deaths in half.

Particulate, mercury emissions hurt nature too

Power plant particulate emissions and smog-forming gases not only endanger human health, but also affect the natural environment. Average visibility today in the Smoky Mountains in North Carolina, Tennessee and Virginia is about 25 miles.[18] Without pollution from power plants and other sources, average visibility would be 113 miles. Visibility declined about 60 percent during the 35 years after 1948.[19] Just look at the cover of this book to see how hazy the Smoky Mountains are now due to manmade air pollution.

These same hazy pollutants generate acid rain, which weakens plant and animal life. Increased acidity means, for instance, that about half of Virginia's mountain streams have reduced capacity to host fish populations.[20] Other air pollutants settle into the soil, which harms forest growth and measurably reduces agricultural yields.

As air pollution washes from the land into rivers and coastal waters, it feeds excess algae and kills fish by reducing oxygen in the water. For example, the largest source of algae-causing nitrogen in the Chesapeake Bay is air pollution, much of which comes from power plants.[21]

Finally, coal-fired power plants are the largest source of toxic mercury pollution in the United States. Mercury, a highly toxic metal, settles from power plant smoke onto the land, where it washes into streams and rivers. Through contaminated fish, it works its way into the human food chain where it is particularly a danger to children and developing fetuses. An estimated 13,236 children in the Southeast each year are born with neurological damage due to mercury exposure. [22]

Every year, 13,236 Southern children are born with neurological damage from mercury exposure.

Every Southern state has significant damage to its lakes, streams and rivers from mercury pollution. Nearly two-thirds of Virginia rivers and all of the state's coastline contain certain fish that pregnant women and women of childbearing age are warned not to eat due to mercury contamination.[23] Georgia, Florida and South Carolina jointly advise people not to eat any large king mackerel.[24] Alabama has several rivers on which it advises that no one eat the largemouth bass,

and the entire Gulf Coast is off-limits for mackerel consumption.[25] Tennessee lists only six miles of river as contaminated, but this is apparently because it uses a contamination threshold four times as high as other states and doesn't monitor many water bodies.[26] In Kentucky, women of childbearing age are advised to eat no more than one serving of fish per week from Kentucky waters due to mercury.[7]

Scientists now are finding higher mercury levels in songbirds.

While mercury pollution of fish is well-known, recent studies show that it also accumulates in non-aquatic animals. Biologist David C. Evers of the Biodiversity Research Institute found that every one of 178 songbirds trapped for a recent study had elevated mercury levels which were high enough, on average, to affect their reproductive systems.[28]

"If these birds are having trouble, that should be a very good indicator of a risk to our own well-being and health as well," said Evers.[29]

Feds phase-in changes

In 2005, the U.S. Environmental Protection Agency issued regulations that are expected to require gradual retrofits of existing power plants to curb emissions of nitrogen oxides and sulfur dioxide, which generate smog, acid rain and particulates. The EPA rules also phase-in major reductions in mercury pollution. Unfortunately, these reductions will be slow. While smog and particulate-generating emissions will be reduced by around 60 percent by 2015, the full effects of these regulations, including 73 percent reductions in particulate-forming sulfur dioxide, will not occur until 2020 to 2025.[30] The mercury regulations, requiring 70

percent reductions in power plant mercury pollution, are to be fully implemented in 2018.

These federal regulations allow states to comply by participating in an interstate "trading" system. Individual power plants must either lower emissions below the standard or buy a "credit" to allow them to pollute above the standards. Plants that beat the standard can sell their credits to those that pollute too much. Over time, the standards get tougher and the number of credits shrink, which forces more and more plants to comply.

A problem with new federal rules is it allows plants to delay clean-up by buying credits from other plants that might be far away.

This is a cost-effective strategy as far as it goes, but it may do too little and leave some communities behind for two reasons. First, the federal standards may not require as much overall emissions reductions as quickly as are justified by health concerns. Second, it is possible that your local power plant will delay clean-up for years by buying credits from other plants far away.

Recommendation 3: Southern state legislatures should push for faster and bigger emission reductions, especially for mercury, than those required by the federal program. Southern state legislatures also should make sure that the greatest possible power plant nitrogen oxide and sulfur dioxide pollution reductions actually happen in their home states rather than through buying credits elsewhere.

Due to the high toxicity of mercury, 12 states covering about 120 million people have already decided they can do better than the federal rules. Instead of participating in an interstate trading market that might allow home-state power plants to pay for the right to continue polluting, they have opted out, guaranteeing that power plants will be required to meet standards though in-state reductions.[31]

These states and others are also requiring power plants to clean up mercury faster than the federal rules require. Connecticut requires 90 percent reductions by 2008, rather than the 70 percent reductions by 2018 required by federal law for the nation.[32] Illinois requires 90 percent reductions by 2009 and advanced controls on every power plant by 2012.[33] Arizona requires 90 percent reductions by 2013.[34]

No Southern state has completely opted out of the federal mercury market. But Georgia is establishing in-state reduction requirements by administrative regulation, and North Carolina's Clean Smokestacks law is estimated to require in-state reductions of 60 percent to 90 percent by 2013.

No Southern state has completely opted out of the federal mercury market.

Every Southern state legislature should ensure that mercury pollution reductions occur as quickly as physically possible so that no state is left "holding the bag" of continuing mercury pollution based on home-state power plants buying credits from pollution reductions elsewhere.

Monitoring emissions trading

As the trading of emissions credits becomes more ubiquitous, Southern states should closely monitor the actual effects of federal emissions trading efforts on smog and particulate levels throughout the region. They also should find alternatives to new coal-fired power plants, such as through energy efficiency programs outlined in the next chapter.

Prior to issuance of the 2005 federal power plant emissions reduction rule, North Carolina passed its own Clean Smokestacks Act. In fact, the litigation that followed passage of this 2002 rule helped to spur the federal government to act.[35] The North Carolina law requires reductions that are greater and sooner than required by the federal rule.[36] North Carolina power plants must cut nitrogen oxide emissions 77 percent by 2009 and sulfur dioxide 73 percent by 2013.[37] As a side effect, toxic mercury emissions will be cut between 60 percent and 90 percent. As of 2006, North Carolina power companies made numerous upgrades. A report to the legislature revealed they were complying with the law.[8]

Since pollution reductions are required anyway, Southern lawmakers should work hard to ensure they're done now in their states so citizens can realize benefits sooner.

Georgia also is using its role as administrator of the federal program to require that certain emissions reductions occur inside the state rather than wherever a national market chooses.

Examples in North Carolina and Georgia show that Southern legislatures can ensure that all power generators in their state meet a rigorous schedule of pollution control implementation

that exceeds market-based compliance with federal interstate trading rules. But as states award pollution credits for trading, they also should set aside some for energy-efficiency projects that lead to proven pollution reductions and should not favor coal-fired plants over natural gas plants by giving them more than their share of credits based on power produced.[39] These steps will squeeze more pollution reductions out of the federal emissions trading framework and produce some cost savings for individuals.[40]

The Clean Air Task Force has estimated that 91,000 early deaths could be prevented nationwide by cleaning up diesel pollution at a faster rate than the federal regulations.

Another air problem: particulates from diesel engines

As noted earlier, fine particulates from diesel engines kill an estimated 21,000 people per year.[41]

Research also indicates, as you would expect, that fine particulates from diesel engines cause serious health problems. For instance, research published in February 2007 followed a group of children who lived within a third of a mile of a freeway over an eight-year period. It found that their lungs were significantly stunted, compared to children who lived over a mile from the freeway.[42] The study's lead author, W. James Gauderman, noted that "Someone suffering a pollution-related deficit in lung function as a child will probably have less than healthy lungs all of his or her life."[43]

Some of the most dramatic research concerns people actually driving on freeways. Tests of the heart function of healthy, young adult police officers in North Carolina found that when vehicles sped up in front of them on the freeway, the resulting surges

Problems with fine particulates

Southern states in the top half of U.S. states

Adult deaths	Rank	Child health problems
	6	Florida
Florida	7	
	11	Georgia
Georgia	13	Louisiana
Louisiana	14	
	15	North Carolina
North Carolina	16	
Tennessee	17	Virginia
Virginia	19	
	20	Tennessee
	21	Kentucky
	22	Alabama
Kentucky	23	South Carolina
Alabama	25	

Source: "An Analysis of Diesel Pollution and Public Health in America," Clean Air Task Force, June 2005.

in particulate pollution were measurable inside the police car and caused abnormal heartbeats and changes in bodily processes controlling inflammation and blood clotting.[44] This study followed others that show how fine particles accumulate at a much higher level inside school buses than in the outside air.[45] Particulates have also been found to increase strokes and infant mortality and to reduce fetal growth.[46]

Recent federal fuel and engine regulations will eliminate some of this pollution from motor vehicles as old vehicles are replaced. But the diesel engines that power tractor trailer trucks, garbage trucks, transit and school buses, locomotives, construction equipment and ocean-going ships can last for decades. The non-profit Clean Air Task Force (CATF) has estimated that 91,000 early deaths could be prevented nationwide by cleaning up diesel pollution at a faster rate than the federal regulations.[47]

Southern states and metropolitan areas are hit hard by diesel fine particulate pollution. Eight of the 11 Southern states are among the top half of states in total estimated fine-particulate-caused deaths, and nine are among the top half for deaths to children.[48] Looking at the South's metropolitan areas, Baton Rouge, Louisiana, has the highest estimated per capita rate of child health problems from diesel fine particulates in the nation.[49] Eight other Southern metropolitan areas are in the top 40, including:

- New Orleans, Louisiana.
- Huntington-Ashland, Kentucky
- Lafayette, Louisiana
- Lake Charles, Louisiana
- Mobile, Alabama
- Memphis, Tennessee
- Louisville, Kentucky
- Atlanta, Georgia[50]

The Clean Air Task Force suggests that a faster, more effective and better targeted way to reduce human exposure to fine particulates is to add particulate filters to the thousands of existing diesel trucks and buses that will be on the road for years to come.[51] These filters immediately reduce particulate pollution by 90 percent.[52] Since more than half of human daily particulate exposure occurs during the 6 percent of the day spent commuting to and from work, this targeted intervention would significantly reduce particulates reaching a large part of the population.[53] Even in areas that already meet federal "attainment" standards for fine particulates, such an intervention strategy is needed to protect public health because it targets pollution where people are most likely to encounter it.

Particulate filters are just one strategy among a range of options already funded by several states that have chosen to do more than the minimal amount of action possible with limited federal grants. For instance, California's "Carl Moyer" program funds truck retrofits, new school buses, truck stop electrification and other methods of diesel pollution reduction.[54] Texas has similarly stepped up to the plate with its Texas Emissions Reduction Plan.[55] In 2006, New York became the first state to establish a plan to clean up all heavy-duty diesel vehicles used by the state government.[56] In 2005, New Jersey enacted a 10-year, $160 million plan to reduce overall diesel pollution by 10 percent. And in 2007, Arizona Governor Janet Napolitano issued an executive order giving preference in state contracting to contractors that use retrofitted or clean diesel vehicles, while Tennessee steered some of its federal transportation funds into diesel retrofits.[57]

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Recommendation 4: Each Southern state legislature should fund a diesel clean-up program designed to yield maximum health benefits for its state.

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Each Southern state legislature should require an assessment of the diesel fine particulate clean-up program appropriate to yield maximum health benefits for its state. Given the complexity of air quality regulation, each state will need to analyze and design the most effective mix of strategies to retrofit trucks, buses and school bus as well as to replace and clean-up state- and city-owned vehicles.

State air quality regulators also will need new funding to go beyond meeting federal minimum standards. Legislative backing and leadership are needed to begin saving lives and improving health now, rather than waiting decades for every diesel engine to be replaced with new technology.

Cleaner air for the South

Southern states already have proven tools at their disposal to help clean up coal-fired power plant particulates, smog and mercury as quickly as possible to protect public health and natural resources. In taking the next steps toward cleaner air, they should prefer efficiency and cleaner energy over new coal-fired plants. Southern states also should enact innovative programs to protect the public from diesel particulates. Finally, to the degree that Southern states take advantage of the dramatic public health research on air pollution and implement solutions, action to clean up air should allow leaders to promise residents an unparalleled quality of life and begin to assert an appropriate leadership in the national dialogue on air pollution.

Talking points

- Over the past two generations, improvements to the country's air quality have been one of the greatest environmental success stories.

- But there's still a lot to be done. While the federal government has taken action to require coal-fired power plants to reduce emissions of noxious gases, the full impact of changes won't be felt for more than a dozen years.

- Therefore, Southern states should take tougher steps now than required by the national government to clean up coal-powered plants to protect the health and safety of people across the South. They should refrain from buying pollution credits from other places because that just allows polluters to keep on polluting until a later date.

- Southern lawmakers should pay particular importance to fine particulates from diesel engines because the region's air ranks high in adult deaths and child health problems from these particulates.

- Acting now to clean up coal-fired power plants and diesel emissions will improve air, show leadership nationally and create a better quality of life for millions across the South.

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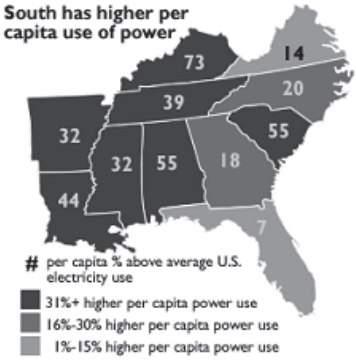
BETTER POWER

Improving efficiency and using renewable energy

The number one priority for future energy planning in the South is to become more energy efficient. By emphasizing efficiency, shifting to renewable power supplies and promoting fairness through proven strategies, Southerners can reduce pollution and monthly power bills while maintaining a strong economy.

Background: Southern states use more electric power

Southern states use much more electricity per capita than other states. This is partly because of the region's hot, muggy summers, but it also flows from differences in state policies, practices and economies. For instance, Kentucky homes and businesses use 73 percent more electricity per capita than the national average, but Floridians use only 7 percent more. The chart to the left highlights Southern power consumption per capita, according to 2003 U.S. Department of Energy figures.[1]



Interestingly, Southern states make up seven of the top 10 average per-capita electricity-

using states, as highlighted in Appendix 2. While Wyoming residents use more electricity per capita than any other state's residents, Kentucky comes in second with 20,701 kilowatt hours per person, according to 2003 figures.[2] Closely following are Alabama (3rd), South Carolina (4th), Louisiana (5th) and Tennessee (6th). The top 10 electricity using states per capita is rounded out by Arkansas (9th) and Mississippi (10th).

The South's power hungry relationship is even stronger for in-home electricity use. Southern states make up 11 of the top 12 states for average residential electricity use, as shown in the chart at left taken from U.S. Energy Information Agency data.[3]

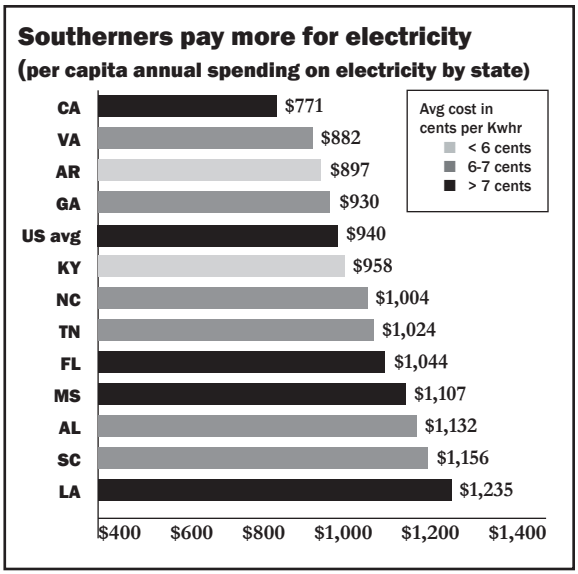
Home electricity use by month

Rank	State	Monthly avg kWhrs	% above US avg
1	**Tennessee**	**1,332**	42%
2	**Alabama**	**1,281**	37%
3	**Louisiana**	**1,257**	34%
4	**Mississippi**	**1,244**	33%
5	**South Carolina**	**1,229**	31%
6	**Virginia**	**1,225**	31%
7	**Texas**	**1,195**	**27%**
8	**Kentucky**	**1,194**	27%
9	**Florida**	**1,193**	27%
10	**Georgia**	**1,148**	27%
11	**North Carolina**	**1,147**	22%
12	**Arkansas**	**1,132**	21%
	US average	**938**	

SOURCE: U.S. Department of Energy.

One reason Southerners use more electricity appears to be because Southern power generally is cheaper per kilowatt hour. But does this really mean lower electricity bills? Kentucky has the cheapest electricity in the nation, at 4.6 cents per kilowatt-hour.[4] Most Southern

states fall between 6 and 7 cents per kWhr, with only Florida exceeding the national average of 7.6 cents.



But because Southerners use so much more electricity, they actually pay more per capita for electricity than people in most states. The chart at right highlights how Southerners tend to pay more, even though people in many states have a lower average cost per kilowatt hour. (See also in Appendix 3).

These per capita electricity costs, which include business electricity uses, also often include high residential electricity bills. For instance, Southern states make up eight of the top eleven highest monthly residential electricity bill states, as shown in the chart on the next page.[5] Every Southern state except Kentucky has a higher-than average monthly electricity bill.

As a comparison, even though Californians pay almost double per kilowatt hour what most Southerners pay, they pay much less per capita on average for electricity. Residential customers

Top 20 residential electricity bills			
Rank	**State**	**Rate in cents/ kWhr**	**Avg. monthly bill**
1	HI	20.7	$138.16
2	TX	10.93	$130.64
3	**FL**	**9.62**	**$114.75**
4	**LA**	**8.87**	**$111.53**
5	CT	13.64	$109.82
6	**MS**	**8.71**	**$108.37**
7	**SC**	**8.67**	**$106.58**
8	**AL**	**8.00**	**$102.41**
9	**VA**	**8.16**	**$99.96**
10	**NC**	**8.65**	**$99.25**
11	**GA**	**8.64**	**$99.22**
12	NY	15.72	$97.55
13	NV	10.2	$96.15
14	MD	8.46	$94.74
15	**TN**	**6.98**	**$93.04**
16	DE	9.01	$92.35
17	AZ	8.86	$91.69
18	**AR**	**8.00**	**$90.61**
19	AK	13.3	$88.99
20	OK	7.95	$88.90
	US average	**9.45**	**$88.60**

pay about 20 percent below the national average per month.[6] California shows what a forward-thinking energy policy can do over time: for 30 years, it has implemented efficiency programs that gradually lowered usage relative to average states. Meanwhile, the economy boomed. Even though various factors caused overall electric rates to rise, California consumers have paid less overall every month because residents and businesses use much less energy. As a bonus, California produces dramatically less power plant pollution and has developed a leading renewable energy industry.

Bottom line: Not everything coming out of California is bad. While Southern states are sometimes reluctant to copy Western or Northern states, the potential benefits of developing

effective, comprehensive energy efficiency programs are huge: consumers can spend less on direct energy costs and simultaneously avoid indirect health and environmental costs. Furthermore, the potential to reduce spending on utilities and to cut pollution in Southern states is enormous because they have not adopted many of the energy efficiency programs or implemented them as broadly as other states.

The potential for Southerners to save a lot of money on power costs is dramatic because they haven't adopted many of the energy efficiency programs that are commonplace in other states.

An energy fund to help the public

One of the best ways to develop a system that causes less damage to health and the environment is for states to reinvest a small portion of monthly utility bills into a new public fund. Known as a "Public Benefits Fund" or "PBF," this public policy tool serves as an economic driver that rewards energy efficiencies and provides renewable energy incentives.

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Recommendation 5: Each Southern state should create a Public Benefits Fund that invests 2 percent to 3 percent of utility bill charges into strategies that boost energy efficiency, generate more renewable energy and provide low-income energy assistance.

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A PBF is a sensible way to fund energy improvements because it creates a positive relationship between power generation and some of its costs. Today, many of the real costs of power plant pollution are felt elsewhere. Hospital emergency rooms, for example, deal every day with the health impacts of pollution. Similarly, farmers, foresters and commercial fishermen realize lower yields and production because of environmental impacts from pollution that stems from power plants. Funding cleaner power by reinvesting a small portion of utility bills in better solutions "internalizes" the cost of improvement to those who use the most power, rather than offloading their costs on the general taxpayer.

How a Public Benefits Fund works

In 1980, North Carolina created a "Systems Benefit Charge," dedicating a tiny percentage of electric bills to an award-winning non-profit corporation that helps industries and homeowners find ways to use less energy. Since then, 24 states have expanded on this idea, re-investing up to 3 percent of energy charges in reducing future energy needs and providing cleaner power.[7] But none of these states are Southern states. While other states are investing in solutions that avoid the cost of new power plants and their related pollution, Southern states are largely missing out on this key tool for improvement.

For Southern states to achieve the wide-ranging energy benefits they're missing, each Southern state should build on the movement started in North Carolina and expanded by other states. States should consider setting aside 2 percent to 3 percent of rates for a Public Benefits Fund with a strong, broad legislative mandate to:

- Maximize energy savings through efficiency programs;
- Develop sustainable, non-polluting energy generation;
- Help low-income residents lower their bills and gain long-term cost savings through weatherization and efficient appliances; and
- Push the envelope on researching improvements in efficiency and renewable technology.

Expert staff members also should frequently evaluate and guide programs based on cost-effectiveness for consumers and the potential to shift appliance, building, and energy generation markets towards environmental sustainability.

PBF programs should consider investments in the following four policy areas, to create a cleaner, more equitable future power system.

A. Efficiency programs: The most cost-effective PBF investment

The choice is clear: Instead of building more power plants that will pollute the air and water, we spend the same amount of money to cut power consumption and get rid of the need for the new power plants.

The first priority for PBF funding is investment in energy efficiency programs. The potential for efficiency programs to improve the South's energy future dramatically is suggested by a recent analysis of power company plans to build more than 150 new U.S. coal-fired energy plants, 26 of which would be located in the South. If built, the new power plants would

cost $137 billion.[8] These costs would be "recovered," plus profit, from residents and businesses in the form of higher utility bills. *But an investment in efficiency equal to the construction cost of these plants could cut U.S. power demand by almost 20 percent, completely avoiding the need for the power plants and the costly related fuel and pollution.*[9]

Let's repeat that: If states required ratepayer investment in more efficient energy (through Public Benefits Funds, for example) instead of having companies spend the same billions on new coal-fired power plants, power demand would drop 20 percent, which would wipe out the need for the new plants, as well as costly fuel, pollution and harmful health impacts. A recent Florida-specific study reinforced this point, finding that "energy efficiency policies alone, such as efficient windows, compact fluorescent light bulbs, and Energy Star® appliances, can almost offset the future growth in electric demand."[10]

Efficiency programs are the most cost-effective way to reduce the need for electricity now and in the future. For instance, California recently expanded efficiency efforts by $2 billion. This investment is estimated to avoid $5 billion in energy costs, partly by avoiding the need to build three new power plants in the next three years. These energy use reductions are happening in a state that has already reduced per capita electricity use to about half that of Southern states! Wisconsin estimates that every $1 directed to its public benefits fund saves $6 for the public.[11]

Wisconsin estimates that every $1 directed to its Public Benefits Fund saves $6 for the public.

PBF-funded efficiency programs often give consumers rebates if they choose very energy efficient appliances, such as air conditioners, refrigerators and furnaces. The rebates cover the difference in cost between a regular appliance and the more energy efficient one. They serve as incentives to help new efficient appliances come into the marketplace. PBF programs can also pay for energy audits for businesses, industrial efficiency improvements or even research to develop more efficient processes.

In 2002, appliance rebate programs in several Northeastern states helped more than half of new air conditioner consumers buy high-efficiency Energy Star® units.[12] Estimated economic benefits from these programs ranged between double and eight times the money invested. But in the Southeast where electricity use is highest, the overall market share of Energy Star® appliances is about 50 percent lower than in the Northeast. A key reason is the lack of the kind of cost-effective rebate programs funded through Public Benefits Funds.

B. Renewable energy: Using PBFs to shift the power market to sustainable solutions

Many state PBF programs invest in renewable energy (Renewable energy is discussed further later in this chapter). For instance, they may provide rebates to help install solar energy on homes, businesses or government buildings. California recently targeted a major share of these funds to new home builders so that 50 percent of new homes will be built with solar electric power within the next 10 years. Some developers have already built "zero energy home" communities in which each house produces about the same amount of electricity that it uses. In these

developments, homeowners are essentially using their mortgages and utility bills to buy energy independence for themselves and for the state. The efficiency and solar energy built into these homes will not be subject to inflation and won't produce any pollution. Connecticut, New Jersey, Delaware, Montana, Oregon and Wisconsin also use PBFs to invest in renewable power generation.

C. Low-income assistance

PBF-funded low-income assistance programs often simply reduce bills for low-income residents. Other programs give low-income residents lower energy bills over the long-term by helping to pay for weatherization and more efficient appliances.

Southern states should do more to expand weatherization programs like Alabama and Florida have.

Weatherization programs pay for services such as weather-stripping and insulation. Since low-income families spend an average of 14 percent of their incomes on energy costs (compared to 3.5 percent for the average household), any resulting lower utility bills could be a major ongoing financial assistance with no ongoing public cost.[13] Weatherization also improves heating and cooling, a particular benefit during very hot and cold weather for children and elderly individuals. These programs are a win-win for low-income residents and for all residents because they also lead to reduced pollution and reduced need for new power plants.

The federal government gives every state a small and fluctuating yearly grant to weatherize low-income housing. For instance, Arkansas weatherizes about 1,200 homes per year with its federal

grant, out of an estimated 178,000 eligible homes.[14] At this rate, this cost-saving program will take about 150 years to weatherize every eligible home!

Several states have added state funds to the federal funds to help more low-income families weatherize housing and buy efficient refrigerators and lighting. Florida and Alabama are the only Southern states with a dedicated state revenue stream to expand the federal weatherization program.[15]

Every Southern state should dedicate PBF funds to reach all eligible households that want weatherization and efficient appliance services.

D. Research

PBF-funded research programs promote scientific and applied research into efficiency and renewable energy. PBF-funded research has helped develop numerous efficiency strategies that particularly benefit industry—and eventually all consumers—since they do not have to finance as many power plants.

For instance, California's research program developed coolers for its chicken and other agricultural processors that use 69 percent less electricity and 28 percent less natural gas.[16] It developed insulated roof tiles for flat roofs with built-in solar electric cells that generate power, extend roof life, and significantly reduce air conditioning loss.[17] The roof tiles have become a new business generating over $10 million per year.[18] It recently developed a better process for turning landfill gas into electricity that also reduces the volume of the landfill, potentially extending its life by 20 years.[19] It is currently working on more efficient

air conditioners tailored to the California climate, and a zero-emission gas-fired small power plant.[20]

These kinds of advances create immediate financial benefits for in-state businesses and residents, and grow new industries. Southern states should invest in developing similar advances based around the Southern climate, industries and area needs. Southern states should use public research, funded by a small charge on utility bills, to put themselves in the driver's seat regarding energy advances, rather than waiting for discoveries oriented towards other state's economies to "trickle down."

If the South adopted basic appliance energy efficiency standards, they would reduce electricity demand the equivalent of the amount of energy produced in 10 new power plants.

Appliance standards generate savings

While programs under the Public Benefits Funds should push the envelope on efficiency by offering incentives for consumers to adopt state-of-the-art technology, state governments can adopt a parallel strategy to achieve more energy efficiencies by setting a basic floor on energy efficiency for appliances. Basic efficiency standards protect consumers from outdated technology that causes excessive pollution and energy use. Simply setting these standards will reduce electricity demand in the South by an amount equal to the energy produced by ten new power plants.[21]

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Recommendation 6: Adopt energy-efficient appliance standards so consumers aren't forced to buy outdated technology.

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Potential Energy Savings

Appliance type	Savings in Southern states (in $millions)
Water coolers (bottle type)	40
Commercial Boilers	131
Commercial food warming cabinets	40
Compact audio players	340
DVD players	38
Power company transformers (liquid immersed)	1320
Power company transformers (dry-type)	89
Light fixtures (metal halide)	1656
Pool heaters	216
Hot tubs	10
Home furnaces/boilers	1717
Pool pumps	192
AC power adapters (i.e. for cell phones, etc)	737
Incandescent reflector lamps	933
Walk-in refrigerators & freezers	575
TOTAL	**$8.0 billion**

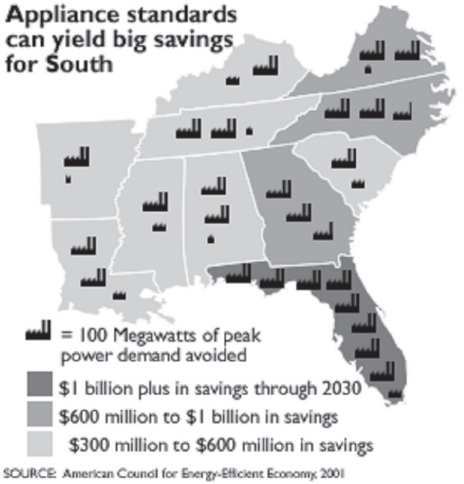
Historically, state governments around the country set the first minimum energy efficiency standards for appliances, such as refrigerators and heat pumps.[22] Manufacturers then became concerned that they would have to meet multiple state standards, so the federal government stepped in and consolidated existing standards in a series of laws signed by Presidents Reagan, George H.W. Bush and George W. Bush.[23] These federally-enacted standards set a basic floor of efficiency for certain appliances. They will save consumers an estimated $250 billion in

reduced energy costs by 2020.[24] This process has repeated itself several times, with states first regulating new types of appliances, and the federal government later adopting national standards to ensure uniformity.

The next round of cost-effective appliance efficiency standards, covering 15 products, are ready for state adoption.[25] They cover the products outlined in the chart at left. Savings are through 2030.[26]

Big savings for Southern states

Implementing these standards will save $4.50 in energy costs for every dollar of increased consumer cost.[27] Nationwide adoption would reduce global warming emissions by an amount equal to eliminating eight million automobiles.[28]



Adoption of these standards would help in each Southern state in a variety of ways, as shown in the chart to the right and outlined in more detail in Appendix 4.[29] Several states would avoid peak power demand for upwards of 300 megawatts, which can result in cost savings in the hundreds of millions by 2030. For Florida,

the result would be even more dramatic, with 857 megawatts of peak power demand avoided—a $2 billion savings over the next 23 years.

By adopting standards on 15 kinds of equipment, Southern states would save as much energy as 10 average power plants produce.

By simply adopting minimum standards for these 15 types of equipment, Southern states would avoid the need for approximately 2,900 megawatts less power generating capacity at peak times, such as summer afternoons when the grid is most strained. This amount is equal to the output of about 10 average power plants.

Southern states would also save approximately $8 billion over a 22-year period between implementation in 2008 and 2030.

Southern states should implement these standards immediately to achieve major savings and focus research at their universities, funded through the Public Benefits Fund outlined above, to continue development of new, more efficient appliance standards in all sectors of the economy.

A safe, sustainable energy path

While reducing power use through efficiencies presents the easiest short-term gains for the environment and consumer pocketbooks, only creating long-term replacements for fossil-fueled power plants will put the country and region on a safe, sustainable path.

While the Public Benefits Fund is one way to replace fossil fuels, another necessary step is to require utility companies to buy an increasing share of their power from renewable sources, such as wind, geothermal, wave power, landfill gas and solar energy. This is called a Renewable Energy Standard (RES).

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Recommendation 7: Southern states should set a "Renewable Energy Standard" that requires utilities to get an increasing share of energy from renewable sources.

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About half of all states, home to more than 150 million people, have already have implemented RES programs.[30] These programs use the pooled buying power of millions of utility customers to create a rising market for diverse renewable energy sources.

Under this approach, private and public utilities use their expertise to locate and develop the most cost-effective sources. Existing RES programs often require utilities to increase the share of renewable energy they buy by about 1 percent per year, with target amounts of anywhere from 10 percent to 30 percent by 2015 or 2020. Many programs have special targets for distributed solar electric generation and some count efficiency program energy savings as "renewable" watts. Many programs require utilities that don't meet a target to pay into a fund for developing renewable energy, or to buy Renewable Energy Credits (REC) from people or companies that do develop new renewable power sources.

It is not only large urban states that have enacted RES programs. Vermont (the most rural state in the continental U.S.) has required that all increased power generation sold through utilities between 2005 and 2012 be generated through renewable sources. Maine has the highest RES standard—30 percent now, with an additional 10 percent renewable generation by 2017. RES programs in Texas, Nevada and Iowa are already more than six years old.

No Southern states have adopted Renewable Energy Standards.

But in the American South, only the city of Jacksonville, Florida, has established a Renewable Energy Standard. Jacksonville's city-owned utility is an example of how local government can take the lead when it controls a publicly-owned utility. In 1999, the City committed itself to generating a rising share of its power from renewable resources. As part of this effort, Jacksonville became the only city in the nation to install solar electric panels on every high school in the utility's territory. It currently helps residents and businesses pay to install and maintain solar hot water heaters.

Despite the fact that the South is clinging to outmoded ways of generating power, alternatives are rich for exploitation throughout the region.

While other states are using market forces to find ways to generate cleaner energy that doesn't cause global warming or deplete resources for future generations, the South is generally clinging to outmoded ways of generating power.

This reluctance is not for lack of renewable energy resources. For instance:

Requirements would work. A North Carolina state-funded study recently projected that if the state requires 5 percent of all electricity to come from renewable energy sources over the next 10 years, it would provide a reliable power supply and cost ratepayers less than building new coal and nuclear power plants. The study further found that a combination of renewables and energy efficiency "could reasonably be expected to produce total electric cost savings for consumers of about half a billion dollars over 20 years."[31] The study also found that up to 14 percent of N.C. power needs could be met through efficiency programs for less than 5 cents per kilowatt hour.[32]

Similarly, a detailed 2007 study of renewable energy and efficiency in Florida found that Florida could reduce fossil-fuel generated electricity demand by 45 percent within the next 15 years.[33] Renewable energy sources account for two-thirds of this total, and could help bring total electricity consumption below current levels in 15 years, even with population growth.[34]

Great possibility: Put windmills on top of oil and gas platforms in the Gulf of Mexico to generate power.

Wind power is doable. Recent offshore windmapping suggests that about 150 gigawatts to 200 gigawatts of energy capacity could be established from winds off the Southeastern shore of the United States.[35] Building only 20 percent of this capacity would generate approximately 105,000 gigawatt-hours of electricity, or a little more than the total amount of electricity used in South Carolina during a year.[36] According to one wind

energy company, Louisiana has the best offshore wind resources in the United States, plus more than 5,000 oil and gas platforms already offshore, some of which could be used to mount windmills.[37]

Biogas offers opportunities. In North Carolina alone, potential electricity from biogas from animal waste, at 25 percent conversion, has been estimated at 3,000 gigawatt-hours.[38] A recent study specifically looking at waste from hog farms estimated that using existing technology to generate electricity from North Carolina hog waste would provide enough power for 90,000 homes annually.[39]

Solar power can be big. A Florida study has estimated that solar electricity generation and solar hot water heaters could cut the need for new power plant capacity by 124 megawatts—the equivalent of powering about 124,000 homes. Recent estimates in connection with development of a Georgia State Energy Plan suggest that solar electric power could provide up to 200 megawatts in Georgia.[40] The document notes that this estimate excludes the generally less expensive option of solar hot water heating.[41]

Biomass: The University of Georgia estimated in 2003 that, while Georgia technically could supply 12 percent of its electric capacity from biomass, a much smaller, but still significant 672 megawatts could be generated by easily-available biomass.[42]

Between the energy efficiency measures suggested throughout this book and the undeveloped potential for renewable energy production in the South, RES standards could drive a significant shift in the profile of Southern power generation.

Local governments can get into the act too

Local governments across the South can emulate Jacksonville, Florida's effort to get greener by investing in renewable energy. But they can do much more. Every local government could improve energy efficiency at its own facilities and in its local community, and could purchase renewably-generated energy. Local governments can purchase only efficient and alternative-fuel vehicles, including garbage trucks, transit buses, and school buses. Local governments could adopt green building codes (Chapter 5) and global warming plans (Chapter 1), and implement growth management and transportation planning practices that allow residents energy-efficient public transit and non-motorized transit options.

Also, many local governments directly manage a publicly-owned utility. These cities could move ahead of state utility regulation by establishing their own Public Benefits Fund with incentives for resident individuals and businesses to invest in efficiency and renewable energy. They could also set their own Renewable Energy Standard.

Finally, as this book goes to press, the city of Cambridge, Massachusetts is putting the power of local government behind improved commercial and residential energy efficiency in an unprecedented way. It has developed a $70-million, multi-year plan to reduce community-wide energy use by 10 percent overall and 14 percent on-peak.[43] About half of the city's 23,000 buildings will receive detailed energy audits, and residents and businesses will be eligible for loans from a city fund to make energy efficiency building retrofits.[44] The city estimates that meeting energy demand through these improvements will cost about one-third of the amount of meeting that demand through a new power plant, while also reducing pollution.[45]

Conclusion: South's energy policies need to mature

As the South grows and changes, its energy policy should also mature. Modern economies increasingly place value on exactly the resources degraded by our current power generation system—clean air and water and a healthy environment for children, workers and seniors. As the global economy develops, clean energy solutions will be in increasing demand. Many states, including in some cases Southern states, have tested proven ways to reduce pollution, avoid the need for so much power generation and to shift generation to renewable technologies. Southern communities and states should adopt these policies, adapting them for specific needs, and build on them to become clean energy leaders.

Talking points

- Southern states are power hungry—Southerners have a higher per capita use of electrical power than people in any other region.

- While Southern power rates are relatively low compared to the rest of the country, Southerners pay more in per capita annual spending on power than most other Americans—because they use so much more electricity.

- Because the cost of power has been relatively inexpensive, Southern states haven't pushed to generate energy savings. In fact, they've been clinging to outmoded ways of generating power. Now is the time for the South's energy policies to mature.

- But if states would focus on reducing energy consumption, such as by adopting stronger appliance efficiency standards, residents would save money and cut pollution. Adopting such standards in the South would save as much energy as that supplied by 10 average power plants.

- Additionally, states could focus on new strategies to save energy. One example is the use of a Public Benefits Fund, which would allow states to pool a small portion of consumer utility bills into a fund to reward energy efficiencies, generate more renewable energy and provide low-income energy assistance.

- States could also emphasize renewable energy by requiring utilities to get an increasing share of its energy from renewable sources.

- Such renewable energy requirements would work in the South, which generally hasn't tapped into major resources of wind, solar and other types of renewable energy. By using these sources of energy, the South wouldn't have to build as many power plants, which would cut future pollution in a big way.

- Like state governments, local governments can get into the act by adopting energy standards and efficiencies, and by focusing on renewable energy strategies.

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BETTER CARS

Using cleaner cars for measurable change

Southern states should adopt an existing program implemented in other states to require car companies to sell new cars that emit less global warming and toxic air emissions.

When we consider pollutants traditionally regulated under the federal Clean Air Act, the regulations have been a dramatic success. Today's new cars emit much less toxic and smog-forming gases than those of the 1960s and 1970s, even after the economy has doubled and driving has nearly doubled.[1] In spite of those advances, the vastly increased amount of driving continues to make automobiles a key source of regulated, but harmful air pollutants. Still, based on already-established rules or state-adopted rules that are tougher, traditional air pollution from cars should continue on a downward trend.[2]

States are caught in a Catch-22 if they want to do something to curb emissions from cars and trucks, which contribute to one-third of global warming emissions.

Global warming emissions from cars, however, are another story. Basic federal car emissions standards say nothing about the emissions that cause global warming, even though the American Association for the Advancement of Science noted as early as 1965 in a discussion of air pollutants that increasing carbon dioxide levels from fossil fuel burning could change the global climate.[3]

About one-third of U.S. global warming emissions are from cars and trucks.[4] Since each gallon of gas that is burned puts over 19 pounds of carbon dioxide into the air, experts say the number one way to reduce carbon emissions from motor vehicles is to take steps to improve gas mileage.[5] But there's a Catch-22 for U.S. states that want to do something: Federal law basically ties states' hands in tackling the problem by preventing states from directly regulating gas mileage.

In addition to preventing direct state regulation of gas mileage, federal law also limits state regulation of the related issue of tailpipe emissions. Under the federal Clean Air law, states have only two auto emissions regulatory options:

- **Federal standard.** They can adopt basic federal automobile tailpipe emissions standards; or

- **California standard.** They can adopt the "clean car" program developed in California, which is given special authority by federal law to set a higher emissions standard. Boiled down, this California alternative prevents car companies from having to make a different version of a vehicle based on a different standard for each state, but allows innovation and improvement on the federal standard.

California's global warming vehicle strategy

In 2002, California used its special position under federal law to add a global warming pollution reduction element to its "Clean Car" emissions program. The Clean Car program already reduced smog-forming gases by 10 percent to 15 percent below non-California cars. Starting in late 2008 (the 2009 model year), car

companies in California must begin selling cars in California that also produce less global warming pollution. By 2015, new cars in California will be required to emit about one-third less global warming pollution.[6] These California rules, which were largely responsible for introducing hybrids like the Toyota Prius into the American market, also require car companies to sell a growing percentage of cars with hybrid or other new technologies.[7] Bottom line: Not only do these new rules reduce global warming emissions, but they also change the kinds of cars available on the market.

No Southern state has adopted the Clean Car program.

The California rules are not just for California any more. Since 2002, eleven additional states have adopted California's Clean Car program. When Maryland adopted the rules in 2006, the number of people living in "Clean Car states" topped 100 million – about one-third of Americans.[8]

By 2020, these standards will reduce global warming pollution in the first 10 adopting states by an amount equal to the emissions from 17 power plants that supply 6 million homes. Put another way, these states will save as much gasoline by adopting the Clean Car program as is consumed by all of the vehicles in Florida in a year.[9]

Other benefits of the Clean Car program

The Clean Car program makes sense beyond the environmental arena for several reasons:

- **Saves money.** Consumers realize major savings in states that have adopted the California car standard alternative.

The Oregon State Public Interest Research Group estimates that adoption in Oregon will save Oregon residents $8.2 million per year by 2016 because reduced gasoline usage will outweigh the estimated increase in initial price.[10] In the early years of the regulation, cars would cost about $300 more. But later when emissions reductions are larger, savings would be an estimated $1,000 more.[11] Keep in mind, too, that when these regulations were developed, gas was $1.74 per gallon and gas savings would pay back the initial increased costs in about eighteen months.[12] With today's higher gas prices, payback could initially be a year or less.[13] At only $2.00 per gallon, consumers would save $1,700 over the life of the car.[14]

- **Improves health.** The health benefits of the non-global warming portion of the Clean Car program also could be significant. The federal EPA has found that, since 1990, ground-level ozone pollution, which aggravates asthma and other lung problems, has dropped more in states that adopted the Clean Car program than in those that have not.[15] While several regulatory changes have contributed to this decline, after New York fully implemented California's cleaner car standards in 1996, the rate of child hospitalization for asthma in the Bronx in New York fell from 22 per 1,000 in 1997 to 7 per 1,000 in 2004.[16]

- **Reducing air toxics.** When Northeastern states studied the pros and cons of adopting the Clean Car program, researchers noted the program would have the effect of reducing a group of pollutants known as "air toxics" by about 25 percent.[17] These toxics include benzene (a known carcinogen), as well as formaldehyde and acetaldehyde (probable carcinogens).[18] The researchers noted that lowering

air toxics has "not been the focus of most past regulatory efforts related to motor vehicle emissions," but that the Clean Car program's significant air toxics reduction would be "perhaps [its] most significant air quality and public health benefit."[19]

Southern states can make a difference

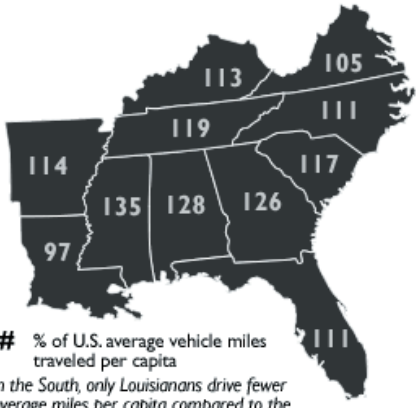
As of May 2007, no Southern state has adopted California's Clean Car program of regulating tailpipe emissions from cars to cut carbon emissions, get cleaner air and improve health.

Recommendation 8: Each Southern state should adopt the Clean Car program to fight global warming, save money and reduce air toxics.

In one light, that means a relatively easy way for Southern states, which have high carbon emissions as outlined in Chapter 1, to make a dent in curbing global warming would be to adopt the emission standards of the Clean Car program.

But it's even more dramatic than that.

Southerners have more to gain financially from improved gas mileage under the Clean Car program than the states that have already adopted it. That's because Southerners drive more than the national average, according to U.S. Department of Transportation data.[20] Because they drive more – and spend more



% of U.S. average vehicle miles traveled per capita

In the South, only Louisianans drive fewer average miles per capita compared to the U.S. as a whole.

SOURCE: U.S. Dept. of Transportation, Oct. 2005.

on gas—Southerners will save more money if their cars get better gas mileage.

Drivers in the states that have adopted the Clean Car program generally drive less than the national average. For instance, Alabamans drive 28 percent more than the national average. This means that they drive 48 percent more than Pennsylvanians and 30 percent more than Oregonians.[21] So even if Alabamans continue to drive more, they would save more money through a Clean Car program because improved efficiency would lead to fewer gas purchases.

Cost-effectiveness is a major driver for states to adopt the Clean Car program. For example, when North Carolina recently studied numerous ways to reduce global warming emissions, adoption of the Clean Car program was one of the most cost-effective ways it found. While some global warming reduction strategies would cost the state money, adoption of the Clean Car program actually would save an estimated $100 for every ton of global warming pollution taken out of the air![22]

Southern states should consider acting quickly to adopt the Clean Car program as a major, cost-saving way to fight global warming pollution. The program would also slightly reduce traditionally-regulated smog-forming pollution, and it would make significant strides against the less-regulated air toxics.

Local governments can make an impact too

While local governments cannot set car emissions standards, every local government can impact emissions in a big way. They can, for example, buy its own cleaner fleet vehicles or switch to cleaner fuels. Cleaner-fuel vehicles might include electric parking-meter vehicles, hybrid cars and buses, natural gas vans and buses, fuel cell vehicles or bio-fueled vehicles. For instance, the City of Hoover, Alabama, has switched its fleet of 160 police, public works and administrative vehicles to vehicles powered by 85-percent ethanol fuel (E85), which gives Hoover the largest E85-fueled law enforcement fleet in the nation.[23] Similarly, the schools of Jefferson County, Kentucky have switched their fleet of more than 1,000 school buses to bio-diesel.[24]

Local governments can help clean the air by showing leadership in buying cleaner hybrid, electric, natural gas or alternative-fueled vehicles.

Such bio-fueled fleets often re-focus the taxpayer funds spent on fuel into the local or regional economy, which creates in-state jobs instead of sending fuel money to distant states or countries.

Many local governments also have the power to change fuel contracts for city cars, garbage trucks, buses, street cleaners and/or school bus fleets to alternative fuels that lower emissions and that target fuel budgets closer to home.

Another option: Local governments are often essential partners in the development of clean vehicle technology because they test new vehicles in their fleets. For instance, the Palmetto State

Clean Fuels Coalition is working with the University of South Carolina and Central Midlands Regional Transit Authority to demonstrate the use of hybrid electric hydrogen fuel cell buses in the Columbia, S.C. area.[25] The company supplying the buses is replicating technology used for six years in Denver, where the new buses carried twice as many passengers as previous buses while emitting 1/60th of the pollution.[26]

Finally, the 2005 revision to federal tax law provides a refundable fuel tax credit for certain municipal clean-fueled vehicles. For instance, the City of Los Angeles determined that it would receive payments of about $1 million per year by taking advantage of this credit for its Liquefied Petroleum Gas garbage trucks.[27]

The local lesson: Cities, counties, and school systems cannot set statewide emissions standards, but they can still be leaders in the development of cleaner vehicle fleets while being responsive to taxpayers and local economic needs. Interested local governments can contact the U.S. Department of Energy's Clean Cities Program (*http://www.eere.energy.gov/cleancities*), which serves as a clearinghouse for local governments switching to cleaner vehicles and fuels.

Talking points

- With one-third of global warming emissions in the United States due to what comes out of cars and trucks, it's common sense to try to cut some of these emissions.

- But U.S. states are prevented by federal law from regulating gas mileage. The only real alternative they can adopt is the "clean car" program developed in California.

- The program allows states to set higher emissions standards, which cut down on greenhouse gases. So far, 11 other states have adopted the program.

- The Clean Car program saves money, improves health and helps reduce toxic air emissions. Enough gasoline is saved in the first 11 states that adopted the Clean Car program as is used in a whole year in the state of Florida.

- While local governments can't directly impact emissions standards, they can show leadership by buying hybrid and alternative fuel vehicles that lower global warming emissions.

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BETTER BUILDINGS

Green buildings: The revolution is here

Southern state and local governments should require all new public buildings to be constructed or retrofitted to meet appropriate LEED standards for green design to save money, promote efficiency and provide leadership. Local governments also should develop preferential permitting to encourage the private sector to meet these standards.

Background

A "green building" revolution has taken hold in cities and states around the U.S. For environmentalists, it's about time. Why? Because buildings in the United States account for 70 percent of electricity consumption, 38 percent of greenhouse gas emissions and 30 percent of raw materials use, according to a U.S. Senate committee.[1] Environmental building technology has raced ahead of basic requirements in traditional building codes. Privately-developed alternative systems, such as the U.S. Green Building Council's Leadership in Energy and Environmental Designs (LEED), are being rapidly adopted by states, universities, cities, counties and public school systems nationwide.

Green buildings go beyond mere energy efficiency. They also conserve water, use environmentally-sensitive construction

materials, manage the underlying land in a sustainable way and reduce toxic indoor air emissions. Every part of a building is considered for its impact on the environment and on the people who will use the building. Here's a snapshot of what happens in construction of green buildings:

- **Recycling.** Materials often are recycled from earlier buildings or other products, which dramatically reduces demolition and construction waste sent to landfills.

- **Runoff.** Construction crews reduce runoff and sediment that can foul streams and sewer systems.

- **Flooring.** Carpets and wood finishes use non-toxic glues and solvents that improve indoor air quality.

- **Light.** Buildings maximize the use of natural light to save electricity and improve alertness and morale.

- **Gardens.** Roof gardens may shade the building, avoiding searing temperatures that require excessive air-conditioning and reducing the amount and speed of stormwater runoff.

- **Roofs.** White roofs may reflect heat instead of soaking it up.

- **Gray water.** Roofs may capture rain in water systems used to irrigate the grounds or flush the toilets; waste "grey water" from sinks and showers can be similarly recycled.

- **Solar.** Buildings are situated to take maximum advantage of the sun's heat during winter, but to avoid heat gain during summer.

- **Geothermal.** Some use the constant temperature of the ground under the building to aid in heating and air conditioning, which can save 40% of normal HVAC system energy use.

- **Technology.** Motion sensors turn lights on only when someone is in the room.

- **Flexibility.** Under LEED green building evaluations, a flexible point system allows each building to reduce its environmental footprint while meeting the needs of the individual site and purpose.

Today's green building gurus are using technology in modern ways that are similar to how our ancestors situated buildings to capture breezes in the days before air conditioning.

Bottom line: Just as our ancestors situated buildings to capture breezes before the days of air conditioning, today's green building gurus are using technology to create energy efficient structures that reduce their impact on the environment as much as possible.

Public sector going green

In the past few years, more than a half-billion square feet of commercial building space has been certified as green under the U.S. Green Building Council LEED* system.[2] The value of LEED-certified projects, which represent the clearest examples within a broader green building movement, grew during the past

*"LEED" is one of several certification systems for green buildings. We reference it, without discounting the value of other rating systems, because it has been judged the most comprehensive by the U.S. General Accounting Office.

decade from less than $700 million per year to about $8 billion in 2006.[3]

Among government buildings, about half of new building project managers in the last year made a special effort to include green building practices with 74 percent in the Northeast and 62 percent in the West constructing or improving buildings according to green standards. However in the South, only 38 percent of public building managers focused on green construction.[4]

Despite the Southern lag in adopting green practices in public buildings, Southern states can also tout green building leadership. The University of South Carolina has the world's largest LEED-certified dormitory and North Carolina's Third Creek Elementary School in Iredell County was the first elementary school in the nation to be certified to a LEED Gold standard. Arkansas-based Wal-Mart Corporation, which has launched one of the most significant private-sector green building campaigns in the world, intends to expand green building practices modeled at a Texas store to thousands of other facilities.[5]

Green buildings usually only cost 2 percent to 5 percent more to build.

Similarly, The Pantry, a convenience store chain headquartered in Sanford, N.C., recently opened the first LEED-certified convenience store, in Gainesville, Florida. The building re-used materials from the demolished car dealership that had previously been on the site, keeping significant amounts of construction waste out of the landfill. It uses native plants for landscaping, which require less water, and non-toxic construction materials.

Energy savings will quickly pay back the increased initial cost of the building, and the Pantry plans to incorporate green building into its future stores, according to Pantry CEO Peter Sordini.[6]

As of November 2006, 100 buildings in Southern states have been built and certified under LEED.[7] The speed with which this system is catching on is shown by the fact that 300 more Southern buildings are in the process of certification.[8] Change is happening so quickly in this area because adoption of "green" practices not only makes environmental sense, but also is cost-effective. Green buildings usually cost only 2 percent to 5 percent more to build – and costs are coming down as the market expands, according to several sources.[9] But since a large commercial building costs about 10 times more to operate as to build over its lifespan, the increased upfront costs are easily paid back by reduced utility and maintenance costs.[10]

States need to get into the act

The states of Nevada, Arizona, California, Colorado, Connecticut, Hawaii, Maryland, Michigan, New Mexico, Rhode Island, Wisconsin and Washington already have required state buildings to meet high-performance green standards equivalent to LEED, usually by executive order of the Governor.

No Southern state currently requires LEED standards for state buildings.

As Wisconsin Lt. Gov. Barbara Lauten noted at the opening of a new LEED-certified state Department of Natural

Resources office building, "Once this effort is fully implemented it will save the state as much as 30 percent on its energy bill, which translates into more than $30 million in annual savings for Wisconsin taxpayers."[11]

Arkansas and Wisconsin currently have laws that encourage all state agencies to use green design strategies, including LEED. Other states provide incentives such as enhanced financing or grants.

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Recommendation 9: Southern states should require that all new state government buildings or retrofit projects meet LEED Silver or better green building standards.

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In addition to state governments, public and private university systems have been in the forefront of the green building movement. Southern universities that have set LEED green building standard and goals for new construction include Clemson University, Duke University, Emory University, Georgia Institute of Technology, Spelman College, University of Florida, University of North Carolina-Chapel Hill, University of South Carolina and University of Virginia. The University of South Carolina's first major green facility, a 500-bed dormitory, saved $40,000 in electricity and $40,000 in water costs during its first year.[12]

In early 2007, South Carolina took another step forward when state Sen. Jim Ritchie, (R-Spartanburg), introduced three green building bills in the state legislature. The first would require state-funded new construction and building renovations to meet

LEED "Silver"-level standards. The second would apply the same standards to new or renovated K-12 schools. The third would provide tax incentives and faster permitting for private developers that meet the LEED Silver standard. [14] According to Ritchie, the bills "will create a South Carolina that is no longer defenseless against unpredictable energy costs." [15] Richie added that "By adopting leading energy efficiency standards, we will actually save the taxpayers money, reduce energy and water usage, and improve the interior environment for employees and our school children."[16]

Local governments also have key role

Local governments have special reasons to encourage green building, and special tools at their disposal to promote it. Local governments often manage and pay for stormwater services, landfills, and drinking water supply and sewer systems. Some even operate electric utilities. Green buildings sharply reduce reliance on all of these systems.

CASE STUDY:
S.C. takes the "LEED"

In late 2004, the University of South Carolina opened the world's largest "green dorm." The 172,000-square-foot "West Quad" building complex not only uses 45 percent less energy and 20 percent less water than comparable dorm buildings, but it also serves as a teaching tool for students. And due to careful construction management, it was completed at no extra cost. According to USC building manager Gene Luna, "USC has demonstrated with West Quad that designing smart, healthy buildings can be accomplished without added costs. Furthermore, we will be operating the complex with significantly reduced utility costs."[13]

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Recommendation 10: Southern cities and counties should require that all local government facilities meet LEED Silver or better green building standards, and they should provide preferential permitting for private sector construction that meets these standards.

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Local governments are deeply familiar with construction issues because of permitting and inspection responsibilities. Hence, they retain a long-term stake in their buildings and leases. That's why, according to Nashville City Councilmember Mike Jameson, "It looks like municipal governments across the country are leading [the move to green buildings]." Jameson, who has spearheaded local legislation requiring city buildings to go green, helped persuade two major downtown private sector projects to go green. "Anybody who's going to retain ownership for five years or more, it's an obvious cost savings and financial advantage," Jameson told a Nashville newspaper.[17]

Ways local governments can encourage green building:

- Fast-tracked building permits for green projects
- Tax credits
- Development density bonuses
- LEED-focused requirements
- Rebates for green-building education

Furthermore through green buildings, cities and counties can provide environmental leadership on global warming and other issues without the statewide coordination needed for state legislative action.

In part, that's why more than 60 U.S. cities and counties—including six in the South—require new city-funded facilities to meet LEED standards. Some offer development density bonuses or require commercial builders to hire a LEED-certified professional to help develop projects. Many also offer fast-track building permits and tax credits to private-sector green buildings. Speedier permits save money for developers by reducing their financing costs, and in the long run, building operators and cities save money through reduced energy and city service use. Big cities with such requirements include Atlanta, Boston, Chicago, Houston, Dallas, Los Angeles, San Francisco, Miami, New York and Washington, DC. But smaller localities are quickly joining the movement, including these:[18]

- **Arlington, Va.** All commercial applications must have a LEED professional on their team. Developers get a density bonus for green buildings and builders must contribute to a green education fund, but the contribution is rebated if their building gets LEED-certified. Residential green buildings get front-of-the line review for permits.

- **Chapel Hill, N.C.** Requires that new and retrofitted city funded buildings meet LEED standards.

- **Athens, Ga.** The Unified Government of Athens-Clarke County (ACC), Georgia, committed in 2004 to achieve LEED standards on all ACC-funded new construction with at least

5,000 square feet of conditioned space and intended for regular occupancy. This policy also covers building alterations where the work area exceeds 50 percent of the aggregate area of the building.

- **Chatham County, Ga.** Provides full tax abatement for LEED Gold buildings for the first five years, phasing down 20 percent per year to zero in year 10.

- **Gainesville, Fla.** All city facilities must meet LEED standards, plus private sector buildings get fast-track permitting and reduced permit fees.

- **Sarasota County, Fla.** All government county buildings must be LEED certified. Additionally, the county provides fast-track permits and a 50 percent reduction in permit fees for private contractors who use LEED. Fast-track permitting applies for residential developments meeting LEED neighborhood development standards

- **Tybee Island, Ga.** All new city buildings must meet LEED silver certification if increased costs can be saved within five years, and higher certification where resources permit.

Green building improves education

Public schools may have the most to gain from adopting high performance green building standards. School buildings currently must meet building codes designed to ensure basic safety. But green schools are designed to go beyond basic safety to maximize student health and academic performance.

A recent study estimates that the average public school could save $100,000 per year—about enough to hire two teachers—if it were housed in a green building. For example, a $10 million "green" elementary school that opened in 2005 in North Charleston, S.C., cost about 5 percent more than a traditionally-built school, but with its daylighting, conservation and other features, the school was expected to recoup the higher costs relatively quickly. [19]

Savings on energy, water, and student health costs at schools like the one in North Charleston generally exceed the upfront costs of building green by about 20 to 1.[20] Put another way, schools currently cost about $150 per square foot to build. Meeting a high green building standard adds about $3 per square foot to these costs, although some green schools, including one in Georgia, report no added costs.[21] Quantifiable benefits include reduced energy and water costs, reduced absenteeism and improved employee retention. More importantly for taxpayers, benefits total $71 per square foot, according to Greg Katz in a report on greening American schools.[22]

The average public school could hire two additional teachers if it were housed in a green building.

Better climate control and air quality in green schools reduces asthma, colds and flu for students and teachers. Many studies have found that better health, lighting and temperature control in green schools lead to measurably improved academic performance. A wide range of studies suggest that green buildings lead to learning and test score improvements of three to four percent.[23] Third Creek Elementary School in Iredell

County, North Carolina school saw a 33 percent increase in at-grade reading and math scores after moving to a new green building.[24]

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Recommendation 11: Local schools should be built to a LEED/CHPS standard. State and local governments should require LEED buildings and more.

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Southern states and school districts have particular reason to adopt green building standards requiring schools to be certified to LEED standards or to standards set by the Collaborative for High Performance Schools (CHPS). First, while some regions of the country expect near-term declining public school enrollment, most Southern states will be building new schools. Southern state enrollments are expected to increase 5 percent by 2014, second only in growth to the western U.S.[25] The new schools built to accommodate this growth can either merely meet minimum standards, or serve to save costs and boost achievement for the next 50 or more years. Incorporating green building practices from the start, rather than through retrofits and remodels, will be a much more cost-effective way to meet these goals.

Second, Southern school children are in particular need of the financial, health and academic benefits green buildings offer. Southern school districts need the reduced operations and maintenance costs from green buildings since every Southern state is below the national average in per-capita student spending.[26] Southern students need the educational

State education *and* health care budgets will realize big savings by greening schools due to reduced student sickness from healthier indoor air quality.

achievement increases that have been found elsewhere with the better lighting, climate control and health performance of green buildings. Why? Because every Southern state except Virginia is below the national average for the proportion of students attaining 4th grade reading level and eight of 11 Southern states fall below the national average for 4th grade math achievement.[7]

Southern states also tend to have lower levels of private employer-provided health insurance coverage for children and higher levels of state-funded insurance. Every Southern state except Virginia provides publicly-funded health insurance to a higher proportion of children than the national average through Medicaid and other programs. In other words, reduced student sickness from healthier indoor air quality would disproportionately benefit both the education and the health care budgets of Southern states.[28] More importantly, healthier indoor air would benefit Southern students, who have been found to have substantial rates of asthma and asthma-related school absences, according to Intellihealth and other sources.[29]

Time is ripe for green building in the South

The green building revolution has taken hold nationwide and has begun in the South. Southern states should ensure that all government buildings meet at least LEED Silver standards, and states and localities should provide incentives for private sector construction to go green. Green government building

requirements should extend to all levels of the public education system – regardless of whether districts are "rich" or "poor" – to provide financial benefits for taxpayers and improved health and academic achievement for students.

Talking points

- Adopting "green building" practices produce huge energy savings because buildings consume 70 percent of the energy in the United States. Energy savings, in turn, reduce pollution.

- But green building goes further because it conserves water, uses better materials for the environment, reduces toxic air emissions and promotes sustainability.

- Public sector buildings need to go green. Building something to green building standards only adds 2 percent to 5 percent to the total cost. And when you consider you'll achieve major energy savings quickly, the public will recoup its investment quickly.

- Southern states should require public buildings, including school buildings, to be built to certified green standards to save energy and money, reduce pollution, promote sustainability and cut unhealthy indoor air pollution.

- Local governments can participate in the green building revolution by adopting new strategies and incentives to reward builders who use green practices.

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BETTER LAND PROTECTION

Saving more Southern land for future generations

Southern states should increase investment in public land conservation and provide better incentives to local governments and the private sector to take advantage of time-sensitive opportunities so Southerners can maintain traditional ties to special outdoor places.

Anyone who has grown up in the South has watched and felt its dramatic urban growth. From 1980 to 2000, the population of the South grew by 60 percent – an increase of more than 25 million people. Despite this overall increase, the South's rural areas lost a half million people. The South transformed itself in one generation from majority rural to more than 72 percent metropolitan.* Southern metropolitan populations have more than doubled, from 23 million people to 49 million people.[1] More people now live in the metropolitan areas of the South than in those of the Northeast.[2]

The generations-long trend of young people moving from farm to city (and more recently, Northerners moving South) has changed the relationship of many Southerners with the land. Former Piedmont peach orchards are now shopping malls. Forests west of Little Rock became subdivisions of mini-mansions, as did many of the farms south of Nashville and in Washington, D.C.'s Virginia suburbs. Condominiums colonized

* "Metropolitan" is a census term recently adjusted to incorporate urban areas and smaller towns, the great majority of which are close enough to larger urban areas to access their services.

the marsh and sea islands from North Carolina to Florida, and around the Gulf to Louisiana. Streams through pastures became channeled storm drains under freeways. Those who once would have battled the elements for their living have climate control, four-wheel-drive, Gore-Tex, cell phones and satellite TV.

"Farm to market" conversion of Southern land

"Farm to market," which once meant a type of road, today describes a different but direct transformation—from "farm" to "market." According to a study performed by American Farmland Trust, every Southern state but Florida was among the top 20 states shifting the most prime farmland to development from the mid-to-late 1990s.[3]

Losses of prime farmland acreage

STATE (rank nationally)	1987-92 (acres)	1992-97 (acres)	CHANGE (increase in rate of loss over previous 5 years)
GA (3rd)	110,900	184,000	66%
NC (4th)	167,100	168,300	1%
TN (8th)	87,200	124,000	42%
AL (10th)	50,200	113,800	127%
VA (11th)	59,800	105,000	76%
SC (14th)	52,600	86,200	64%
MS (16th)	39,000	84,800	117%
LA (17th)	73,800	83,700	13%
KY (18th)	50,700	80,000	58%
AR (19th)	20,200	71,600	254%
FL (36th)	21,900	15,200	-31%

Source: American Farmland Trust

Southern forests also are giving way to development at a dramatic pace. According to the U.S. Forest Service, more than half of the counties where development is most quickly displacing forest are in the South.[4] For instance, North Carolina has lost one million acres of forest since 1990.[5] Five of the top dozen states (see chart above) that recently lost cropland, forests and other open spaces to urban development were in the South.[6]

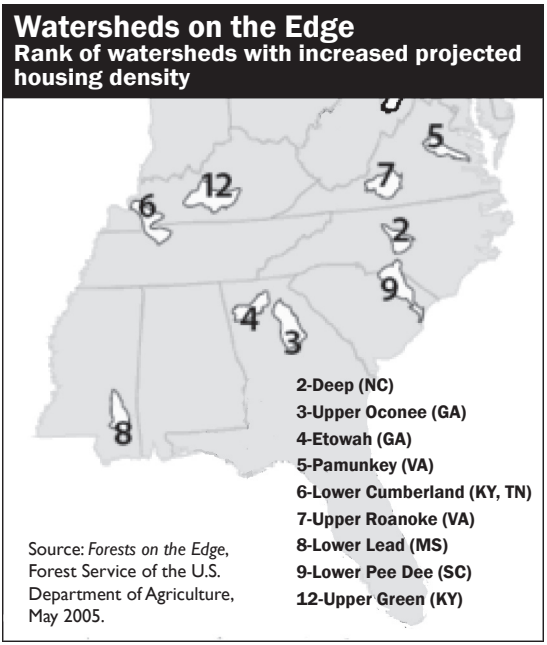
Conversion of land from open space to urban development is moving more quickly than population growth because sprawling suburbs use more acres per person than earlier towns and cities did.[7] Net timberland loss in the South is expected to be about 4 million acres through 2050.[8]

Southern forests are at a crossroads

Southern forests have the highest concentration of tree species diversity in the U.S. and their streams, rivers, bottomlands and swamps have the highest aquatic diversity in the continental U.S.

State policy towards Southern forested lands is at a crossroads in the South because of changes in the market for land and for forestry products. The South's largely privately-owned forests produce more timber than any other region of the United States and more than any other country on earth.[9] Much of these forests are a second growth of timber after trees were leveled for farming and timber production in the late 19th and early 20th centuries. Like the redwoods in the West, the South's virgin bottomwoods, longleaf pine forests and some mountain hardwoods almost completely disappeared in the first major deforestation.[10] For much of the 20th century, large tracts of these lands have been held by timber and paper companies, or by investors for these industries. In recent years, market conditions have induced these industries to sell massive tracts of forested lands for real estate development.

The sell-off of forest holdings comes just as communities are awakening to the ecological value of these lands. Southern forests



display the highest concentration of tree species diversity in North America, even though corporate pine plantations make up 15 percent of the forested area.[11] The streams, rivers, bottomlands and swamps among these forests have the highest concentration of aquatic diversity in the continental United States and the represent the highest concentration of wetlands in the U.S. Southern longleaf pine forest is the rarest forest type in the U.S. with only 4 percent of the original range left.[12]

One measure of the usefulness of these natural areas in our daily lives is that more than 50 percent of the freshwater flow from which we take drinking water originates in forested land.[13] Development converts absorbent forested land to "impervious surfaces." These areas of pavement, rooftop and land compacted by machinery greatly increase stormwater runoff and send eroded soils and chemicals into streams and rivers. The U.S. Forest Service has found that during the decade prior to 1998, the number of Southern river miles "impaired" by pollution rose from 26 percent to 45 percent.[14] A recent analysis of the

impact of development on forested lands listed the top 15 watersheds in the United States expected to be sharply affected by development.[15] Eight of the top 10 were in the Southern states of Georgia, Mississippi, North Carolina, Kentucky, South Carolina, Tennessee, and Virginia.[16]

Creating permanent green infrastructure

As large tracts of forest lands come on the market, national conservation organizations and some Southern states are working to dedicate strategic portions of these lands as permanent green infrastructure, managing them as a guarantee of clean water, clean air, biodiversity and recreation for the public. This project is both massive and time sensitive because the unique value of these large parcels will disappear once they are fragmented and supplied with roads and utilities.

In 2006, the Nature Conservancy, a private, non-profit conservation organization, worked with states to purchase more than 200,000 acres of former International Paper Company forests in every Southern state but Kentucky — Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia. Along with simultaneous purchases in Wisconsin and Maine, these transactions totaled more than 700,000 acres — an area larger than the state of Rhode Island. These purchases were the largest private land conservation deal in history, but they accounted for less than 5 percent of forested lands coming onto the market.[17] The conservancy will sell some of the trees that have been planted on the land as cash crops and use the funding to replace them with native species, restoring the natural forest.[18]

Economic growth and development have made welcome incursions in the South's historic poverty, and have fulfilled the dreams of many people who left farms and small towns to find prosperity. Yet, even life lived apart from the land depends upon its natural ecosystems. Human activity has constantly transformed the Southern landscape, whether by deforestation, fire suppression, drainage of swamps, the farming practices that eroded topsoils and exposed the red clays of the piedmont, or the managed reforestation of the 20th century. The next phase of Southern land management should promote and preserve for future generations functioning natural ecosystems that also support human health, recreation and economic value.

People per acre of state parks

State	Parks or preserved acreage	Number of people per acre	Rank
Rhode Island	8,748	123.0	1
Mississippi	**24,287**	**120.3**	**2**
Virginia	**64,537**	**117.3**	**3**
Louisiana	**41,311**	**109.5**	**4**
Georgia	**84,197**	**107.8**	**5**
Alabama	**48,154**	**94.7**	**6**
Arizona	63,623	93.4	7
Kansas	32,900	83.4	8
Kentucky	**58,347**	**71.5**	**9**
Ohio	164,548	69.7	10
South Carolina	**80,734**	**52.7**	**11**
Arkansas	**53,028**	**52.4**	**12**
Oklahoma	72,257	49.1	13
North Carolina	**183,459**	**47.3**	**14**
Iowa	66,953	44.3	15
Pennsylvania	291,132	42.7	16
Tennessee	**140,820**	**42.3**	**17**
Florida	**723,852**	**24.6**	**29**

Source: 2006 Annual Information Exchange, National Association of State Parks Directors

Catching up on conservation

By several measures, Southern states, which have traditionally had the nation's most rural economies, have not yet caught up to the land conservation needs of a more populous and urbanized society. One measure involves state parks,

which not only preserve natural areas, but also give the public a right to access cost-effective recreation.

Eight Southern states rank in the bottom 15 nationally for total acres of state parks.[19] Seven are in the bottom half for spending on state parks.[20] While the median U.S. state provides one acre of state park per 30 residents, every Southern state but Florida requires 40 to 120 residents to share an acre.[21] Southern states make up five of the six states with the fewest state park acres per person in the U.S.[22] Georgia, Louisiana, Mississippi and Virginia have less than one acre of state park for every 100 residents.[23]

A more general measure of state land conservation involves **per-capita spending on conservation**. This measure includes not only state parks funds, but also other conservation efforts, such as state-funded easements that pay willing private landholders permanently to protect land, or grants to local governments for greenspace. Data compiled by the national nonprofit land conservation organization Trust for Public Land show that in 28 Eastern states, per-capita land conservation spending ranged from 25 cents per year to $30 per year from 1998 to 2005.[24]

Source: du Moulin and Gray, *Conservation Almanac*, 2007

Among Southern states, Florida and North Carolina were well above the average at $25.01 and $10.42 per capita, respectively. Every other Southern state fell below *half* of the Eastern state average, as highlighted in the graphic.[25]

Building revenue streams for land conservation

Like any long-term infrastructure, land conservation is best pursued through dedicated revenue sources, such as taxes on real estate transfers or sales taxes that are set aside for this single purpose. Dedicated revenues promote long-term planning and allow the time needed for large projects. They also allow taxpayers to take advantage of land opportunities when markets fall and to support bonded indebtedness, which can enable major purchases of undeveloped lands before land values rise due to further development.

What if?

How much money states could raise for land conservation at $1 per person per month

State	Amount
Alabama	$55 million
Arkansas	$33 million
Florida	Already spends more than $2 per person
Georgia	$109 million
Kentucky	$50 million
Louisiana	$54 million
Mississippi	$35 million
N.C.	$104 million
S.C.	$51 million
Tennessee	$72 million
Virginia	$91 million
TOTAL	$654 million

SOURCE: Center for a Better South calculations

Southern state governments should create or expand existing dedicated revenue streams for land conservation to at least $1 per capita per month—less than half of what Florida already spends.

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Recommendation 12: Every Southern state should boost dedicated revenue and bond funding for land conservation to at least $1 per person per month, and should maintain at least an acre of state parks for every 30 residents.

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The impact of spending $1 per person per month for land conservation would be astounding. Excluding Florida, which spends more than $2 per person per year, Southern states would generate a pool of more than $650 million a year for land conservation—an increase of more than a half billion dollars a year to protect special places for future generations.

Possible state revenue streams for protecting land

- *Borrowing through general obligation bonds*
- *Annual appropriations to state trust funds*
- *A portion of sales tax*
- *A portion of real estate transfer fees*
- *Deed excise stamp fees*
- *Sporting goods tax*
- *Severance tax on oil and gas*

As Southern states dedicate revenues to land conservation, they should assess how much of these revenues should be used to support bonded indebtedness. Bonds can be used to support larger land purchases at an earlier time than if states wait to receive annual revenues. This can lead to saving large, strategic parcels from fragmentation or development. Despite interest costs, such purchases also can be economically advantageous where populations and land values are rising. Several Southern states have had recent successes in using bonds to make long-term commitments for land protection:

- **Florida Forever.** Florida has pioneered an approach of 10-year conservation plans funded through dedicated revenue streams, general obligation bonds and incentives for local government action. Twice Floridians have approved $3 billion, 10-year plans for strategic land set-asides that had significant ecosystem, water quality and public recreation values. This "Florida Forever" program has permanently protected more than 2.3 million acres.[26] Florida's large, long-term commitment of resources enables sophisticated evaluation and planning that allows the state to target its resources carefully based on objective priorities, such as species preservation, watershed preservation and aquifer recharge, inclusion of diverse habitats and conservation of sustainable forest resources.[27]

- **Big acreage in N.C.** In 2000, North Carolina set a goal of preserving 1,000,000 acres of land over the next 10 years through four conservation trust funds. These funds create and protect parks, natural habitat, beach access and watersheds yielding clean water. Two of these programs are guaranteed funding through a dedicated state tax on deeds. The largest depends on annual appropriations, which were allocated at $100 million in 2006.

- **Alabama Forever.** Alabama voters twice approved major statewide bonds—for $200 million in 1992 and for $110 million in 1998, for an Alabama Forever parks system. However, it has been almost 10 years since the most recent bond measure was approved.

- **Trust funds.** Tennessee and South Carolina recently launched state conservation trust funds that enable the states to coordi-

nate with private partners such as Nature Conservancy, Trust for Public Land, and other land trusts in jointly funding major projects, such as the purchase or protection of former forest company lands. However, these positive efforts are dependent each year on the state's legislative appropriations process.

Most Southern states have some form of dedicated revenues and conservation funding programs, but other than Florida, funding streams are often small. Florida, Tennessee and South Carolina rely on a portion of real estate transfer fees. Arkansas dedicates a 1/8 cent sales tax. North Carolina uses a deed excise stamp fee. Virginia uses a portion of the sales tax on sporting goods. Alabama uses a severance tax on oil and gas. Now that the South has become the home to much of America's growth and development, these programs need to be upgraded to preserve land while it is available and while it is relatively inexpensive.

States can provide local incentives too

States also play a key role in enabling local government conservation funding. Local governments generally cannot raise such funds unless state law allows, but where it does, local conservation plans and funding often involve funding commitments of statewide significance.

Recommendation 13: Southern states should provide incentives to encourage localities to implement strategic countywide land conservation plans.

For instance, 75 percent of Beaufort County, South Carolina voters in November 2006 approved a $50 million bond measure to fund a countywide land preservation plan. (This measure followed up on a $40 million local bond that passed 6 years earlier.) Funding for this one local bond measure approximately equaled the land conservation expenditures of the state government for the eight prior years, from 1998-2005.

Voters in conservative areas in the South are voting overwhelmingly for local ways to protect more land.

In the same election, strongly Republican Cobb County, Georgia, voters approved a $40 million conservation bond measure with 72 percent of the vote.[28] This one local measure equaled about two years of annual state government conservation expenditures. Similarly, voters in three Florida counties recently approved county-level financing propositions providing $260 million for open space.[29] Florida local voters have approved well over $1 billion in conservation funding in the past decade.

These local measures play a special role in land conservation efforts. Because they are more likely to pass in high-growth areas with a significant tax base, they can raise a significant amount of money. This is beneficial because land conservation in high-growth areas tends to be much more expensive per acre than in undeveloped areas.

Here's where states also can get involved through partnerships. By providing matching incentives, states can leverage local interest in land conservation across the state. This approach not only allows higher-cost areas to significantly contribute to more

expensive purchases, but also encourages each area to gain the benefits of land conservation planning.

Success with greenprinting in Georgia

For instance, Georgia enacted a program in 2000 that offered state grants to local governments to help fund local greenspace plans. The goal of this Community Greenspace program was to protect 20 percent of the land in fast-growing counties. More than 90 Georgia counties participated. Many used an approach called "greenprinting," which was jointly developed by the National Association of Counties and Trust for Public Land.

In greenprinting, the latest mapping technology is used to study the possible financial and planning benefits of land conservation in a city, county or region. For instance, in some areas, the local government may save money by conserving land that, if developed, would require taxpayer-financed services such as roads, fire protection and police. The same land may simultaneously provide recreational space or flood control that is beneficial to the developed areas. Through a series of public meetings, local residents decide which scenic areas should be preserved, what natural benefits are most important, and what areas should be developed. Almost 11,000 acres of public greenspace were protected in three years under the Community Greenspace program.

In adjacent Florida, the state for 15 years has operated a Florida Communities Trust program that currently provides $66 million per year in state grants to localities for recreational and natural resource greenspace protection. Many of these grants leverage local government or other matching funds. Through

this program, over 400 parks adorn Florida's cities and counties, providing recreation, a chance for residents to see nature, and enhancement of Florida's economy.

An existing model program was recently enacted in Massachusetts. It provides state matching funds to local governments that dedicate funds to greenspace preservation, historic preservation, and affordable housing. More than 100 cities and towns have passed local measures by public referendum to get state matching funds.

At one time or another during the last 19 years, local governments in every Southern state except Alabama, Kentucky and Mississippi have passed land conservation funding measures. But widespread local efforts with dedicated funding do not exist in the South outside of Florida. Local communities and states have much to gain from creating land conservation matching fund programs that leverage the creativity and resources of local government.

Southerners protected more than 1 million acres across the region through land trusts from 2000 to 2005.

Land conservation booming in private sector

Another way to look at land conservation is to consider private conservation efforts coordinated through land trusts. Land trusts are non-profit organizations that arrange voluntary sales or donations of land or easements that permanently preserve habitat, farms, forests or other open space.

According to data collected each five years by the Land Trust Alliance, land trust activity in the South has grown dramatically in the past five years, but it still lags behind national trends.[30]

Total cumulative land protected by land trusts in Southern states grew from about 600,000 acres in 2000 to 1.6 million acres in 2005. This remarkable 1 million acre increase in protected land represents a 168 percent increase in the five years after 2000. Even so, Southern states, which encompass 24 percent of the U.S. population, accounted for only 14 percent of cumulative private land conservation and 17 percent of recent conservation. [31]

Virginia tax credit provides model

Much of this new activity occurred in a few states. Forty-five percent of Southern land trust preservation during the past five years occurred in Virginia, where a state tax incentive adds to the benefits of a federal tax incentive, creating the most generous state program of its kind in the nation.[32] When the legislature agreed to extend this tax credit in 2006, Virginia Governor Tim Kaine announced his goal of doubling

Private land trust land conservation increases from 2000 to 2005

State	2000 acres protected	2005 acres protected	% increase
Alabama	29,916	96,894	**224%**
Arkansas	1,496	4,222	**182%**
Florida	63,460	86,720	**37%**
Georgia	36,901	103,057	**179%**
Kentucky	4,012	11,429	**185%**
Louisiana	13,645	24,842	**82%**
Mississippi	4,405	54,388	**1135%**
N.C.	102,226	228,524	**124%**
S.C.	97,381	176,461	**81%**
Tennessee	43,804	165,828	**279%**
Virginia	204,660	662,302	**224%**
TOTAL	**601,907**	**1,614,667**	**168%**

SOURCE: Figures calculated from 2005 National Land Trust Census Report, Land Trust Alliance, November 2006.

Virginia's already-substantial yearly rate of land conservation, partly because a survey showed that over 90 percent of Virginians support public funding for land conservation, and less than 2 percent said it was unimportant.[33]

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Recommendation 14: Southern states should emulate Virginia's encouragement of permanent private land conservation through state tax credits that enhance federal tax incentives for land preservation.

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Southern states are already leading in the provision of land conservation tax credits. Of 12 states nationally that provide such credits, five are Southern. In April 2006, Georgia's Governor Sonny Perdue signed into law a new land conservation tax credit. The new Georgia credit reduces income tax liability by 25 percent of the value of easements donated on qualifying land for purposes such as natural preservation, wetlands protection, recreation such as hiking and biking, and prime farmland. South Carolina and North Carolina have similar credits.

Kentucky's outdoor traditions model

The Kentucky legislature, with the support of Gov. Ernie Fletcher, is considering an innovative approach. As in other states, the new Kentucky land conservation tax credit would reduce taxes for an easement donor by at least 25 percent of the value of a qualifying easement. But if the donor agrees to allow public access to the land for hunting, fishing, and bird watching the tax

credit rises, depending on how long public access is granted.[34] This is because, as Kentucky Department of Fish and Wildlife Resources spokesman Mark Marraccini points out, "Kentucky is about 95 percent privately owned lands, and the number one reason we hear from people who give up hunting is that they no longer have a place to go." As the legislation is currently drafted, 30-year public access agreement would allow a 55 percent tax credit, and a permanent agreement would allow a 100 percent tax credit. [35]

Summary: A lot can be protected

Land conservation in the South is taking off. Any longtime resident knows that development has transformed the South, often for the better. But both this generation and those to follow will need our natural infrastructure for recreation, clean water, natural industries and the dramatic beauty of functioning natural ecosystems. We have more tools at our disposal than ever before to manage and protect these resources. With so much value to preserve, the South should take advantage of this opportunity to lead through steady state investment in conservation, assistance to local governments for conservation, and a favorable tax structure for voluntary private efforts.

Talking points

- With more and more people moving into the South, the region's land resources are increasingly being threatened, developed or fragmented.

- Southern forests have the highest concentration of tree species diversity in the U.S. and their streams, rivers,

bottomlands and swamps have the highest aquatic diversity in the continental U.S.

- But due to market conditions, private companies are starting to sell off large forest and watershed landholdings, which makes them susceptible to development and threatens the South's land traditions.

- While private organizations are increasing the amount of Southern protected land, Southern states generally have a long way to go to protect land for an increasingly populous and more urbanized society.

- By increasing spending on land conservation through additional revenue streams, increased bonded indebtedness or other tools, Southern states can protect the traditional Southern link to special places.

- States also can partner with local governments in innovative ways to preserve land for future generations.

- States also can consider improving tax incentives for private landowners to protect more of their land.

Endnotes

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BETTER DECISIONS

Putting environmental justice on the agenda

Each Southern state should establish rules to ensure the benefits and burdens of state environmental decisions are shared fairly.

Imagine you have a nice suburban house with a neat yard and a school nearby. The neighborhood has a park where your kids can play outside.

Now imagine that a concrete recycling plant wants to locate down the street. You believe recycling is a good thing, but you learn this plant will crush rocks 24 hours a day – a process that will create a fine powder that will settle on houses and cars, and will get into children's lungs. Diesel trucks will make about 40,000 trips per year through neighborhood streets to carry rocks and crushed powder. They will create traffic, noise and pollution throughout the day…and night.

Even though the concrete plant will bring a few jobs and some economic growth, there is a 100 percent chance you and your neighbors will fight to stop it. You will get your city and state representatives to keep it from getting the permits it needs to open to protect your children, yourself and your property value. Even a less disruptive business would face tough scrutiny and be forced to prove that it wouldn't harm the neighborhood to locate there. If a landfill tried to locate nearby, but just over the county

line, you and your neighbors would try to stop it or clean it up, even though your local government has no jurisdiction. Why? Because it's the right thing to do for you to keep your quality of life.

Environmental justice

"Environmental justice" is the idea that the government should be careful to treat all communities fairly when it makes decisions that allocate environmental benefits or burdens. In other words, all of a community's park money should not be spent only to improve areas near wealthy homes, and all landfills shouldn't be clustered near existing poor neighborhoods or near one racial group.

Another key concept for environmental equity is attention to "cumulative" problems. For instance, if one plant in an area already has a permit to emit air pollution, the neighborhood could be damaged if the state also gives permits to five other plants to move in and pollute very nearby. Even though each single plant meets the minimum pollution standards, when they are clustered, the "cumulative" effects can be devastating to nearby residents. While the sharpest effects of pollution are felt immediately next to a facility, no one benefits from cumulative pollution that degrades an area because it creates costly social problems and reduces the overall tax base and economy, leaving others to pay more.

Environmental justice is a nationwide concern that is heightened in the South due to a history of racial disparity and less comprehensive environmental regulation. Nationwide, an Associated Press analysis of U.S. Environmental Protection

Agency (EPA) data showed black Americans were 79 percent more likely than whites to live in neighborhoods where industrial pollution was suspected of posing the greatest health danger. Residents in neighborhoods with the highest pollution scores also tended to be poorer, less educated and more often unemployed than those elsewhere in the country.[1]

Every Southern state except Arkansas is in the top half of states for total toxic industrial releases.

Southern communities have received particular attention for the location of landfills, hazardous waste facilities, and power and industrial plants near poor and minority communities. Of notable interest:

- **Toxic states.** Looking at all industries and the 500-plus chemical releases tracked by the federal EPA, every Southern state is in the top 25 for total toxic releases by industry, except Arkansas.[2]

- **Cancer alley.** Perhaps the best-known area for environmental justice concern is "Cancer Alley," a stretch of low-income and minority Louisiana neighborhoods and more than 100 chemical plants along the Mississippi River from Baton Rouge to New Orleans. Partly due to these plants, Louisiana ranks highest in the nation in terms of the amount of hazardous wastes produced per person. Experts have disagreed over the degree to which these wastes have actually induced cancer, but the high levels of dangerous chemicals are uncontested. This industrial region alone, which lies upstream of more than 1 million Louisiana residents, is estimated to generate nearly one-eighth of the nation's hazardous wastes.[3]

- **Cancer risks.** In "Rubbertown," the site of Kentucky's large chemical plants on the west side of Louisville, a recent EPA-funded study found that people living near the chemical plants faced cancer risks from long-term, maximum exposure to plant emissions of four to 60 times those on the east side of town. These risks were measured a year after a company installed equipment to begin cleaning up some of its emissions.[4]

- **Toxic air.** A nationwide summary of toxic air emissions studies found that counties with high populations of African-American and Hispanics were exposed to higher levels of toxic emissions than other counties. For African Americans, the correlation was particularly strong in the Sunbelt states of Arkansas, Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee.[5]

- **Hazardous waste.** In 1983, the federal General Accounting Office found that three of four offsite hazardous waste landfills in EPA Region IV (eight Southern states) were located in mostly-black communities. Analysis in the recent book *Dumping in Dixie* found 100 percent of the hazardous waste in the region is dumped today in disproportionately African-American communities.[6]

- **Landfills.** In the first study of its kind in North Carolina for its state legislature, Dr. Steven Wing found that N.C. communities with significant minority populations are more than twice as likely to be located near landfills than are overwhelmingly white areas.[7]

- **Asthma.** African-Americans and Latinos are three to four times more likely than whites to be hospitalized or die from asthma, according to the U.S. Centers for Disease Control. [8]

Examples of state environmental justice laws

- Notification of neighbors before permitting of new landfills, hazardous waste facilities, power plants or incinerators.
- Inspections of schools for hazardous materials
- Siting requirements for new landfills or hazardous facilities

Current laws

While federal law has often been the basis of civil rights protections, the U.S. Supreme Court has placed limitations on federal efforts to guarantee environmental justice. In essence, this means states, including Southern states, have the right and the responsibility to ensure fairness.

About 30 states have enacted environmental justice laws and regulations.[9] State environmental justice laws often require the government to notify neighbors and hold at least one hearing before giving permits for new landfills, hazardous waste facilities, power plants or waste incinerators, or for development of polluted "brownfields" lands.[10] For instance, parents may have the opportunity to weigh-in when a school might be built on a previously contaminated site. Some laws require inspections of public school for hazards such as lead or excessive pesticides. Because environmental justice laws have not been around for as long as some other environmental laws, many states have only partial laws, and there is wide variation in the types of protection provided.

In the South, Arkansas, Florida, Georgia, Kentucky, Louisiana, North Carolina and Virginia have various environmental justice laws. Each of the other Southern states has laws or regulations not explicitly aimed at environmental justice, but with a similar effect on targeted pollution issues.

Southern environmental justice laws tend to focus on the siting of landfill and hazardous waste facilities. For instance, Arkansas law presumes that if a county has a landfill, a second one won't be approved without significant justification and approval by the local government receiving the landfill.[11] Promoting dialogue with affected communities is another theme: Louisiana, North Carolina and Florida have formal structures to promote conflict resolution between permit-seekers and affected communities.[12] Also, some Southern states have started to consider environmental justice as part of transportation planning. Florida, in particular, focuses on community involvement in brownfields redevelopment decisions. Finally, some states have policies not reflected in statutes or regulations, such as Georgia's agreement to provide more thorough public notice prior to issuing environmental permits.

A review of Southern environmental justice laws[13]

Here is a state-by-state look at some of the major environmental justice laws that Southern states have on the books as of April 2007:

- **Alabama:** Only one commercial hazardous waste facility may be sited per county, and only after the public is notified and has a chance to comment at a public hearing, and after the legislature reviews a study of its socioeconomic impact. Also, the long-range state transportation plan requires the

state to "consider the extent to which low-income and minority populations may be disproportionately impacted by transportation plans and projects."[14]

- **Arkansas:** The Arkansas Environmental Equity Act presumes no high-impact solid waste facility will be located within 12 miles of any existing such facility. The presumption can be overcome if the relevant local government agrees that it receives adequate incentives. Additionally, Arkansas has signed a "performance partnership" agreement with the U.S. government to audit possible environmental justice problems in the state and to promote public dialogue to solve them.[15]

- **Florida:** The state has multiple environmental justice protections:

  ◊ The state offers a program to promote community health near contaminated sites.
  ◊ It also requires public notice before hazardous waste facilities are sited.
  ◊ Local governments must create advisory committees to address environmental justice issues at brownfields development sites.
  ◊ Florida administers key parts of its program through Florida A&M University's "Center for Environmental Equity and Justice" research, training and outreach, thereby taking a less regulatory approach by using university consulting rather than state agency action.
  ◊ When the state enforces the federal Clean Air Act, it can encourage violators to perform "Supplemental Environmental Projects" that help communities facing environmental justice concerns, in lieu of some or all of enforcement fines.[16]

- **Georgia:** Solid waste facilities can't be located within ½ mile of a city or county border unless the city or county agrees. There is a limit on the number that can be placed in one area, and the public must be given notice to attend a meeting to discuss the siting of any new facility. In another area, a recent three-year regional transportation plan included an analysis of its benefits and burdens related to environmental justice.[17]

- **Kentucky:** Before the granting a permit to construct or operate a regional hazardous waste facility, the state must "consider the social and economic impacts" on the affected community.[18]

- **Louisiana:** The state's Community Industry Relations program establishes local panels and facilitates discussion when environmental justice issues arise. CIR can bring in knowledgeable speakers on health issues. The state also authorized a statewide study of air pollution and waste discharges near residential areas.[19]

- **Mississippi:** The legislature intends that "there not be a proliferation of unnecessary hazardous waste facilities in any one county of the state" unless the needs of the state override.[20] More detailed legislation proposing regulation of the disposal hazardous substances that might disproportionately affect minority and low-income populations was introduced in the state legislature in 2007, but failed to pass.[21]

- **North Carolina:** The state must consider demographics in approving landfills; it must consider alternative sites

and socioeconomic data and hold a public hearing when a landfill is proposed within 1 mile of an existing landfill. The Department of Environment and Natural Resources (DENR) also is to act as mediator to resolve environmental equity issues. Finally, DENR must also consider "cumulative and or secondary impacts" of issuing permits. For instance, condemning private land to build a reservoir might have a cumulative or secondary impact of leading to a new wastewater treatment plant.[22] Two bills introduced in the state legislature in 2007 would establish a state Office of Environmental Justice, and require community environmental justice assessments within a five-mile radius of new landfills.[23]

- **South Carolina:** The state employs an environmental justice coordinator who addresses community permitting concerns and promotes community involvement. South Carolina also has studied environmental justice gaps in its Department of Environmental Health and Control permitting and developed recommendations, which were not formally adopted as of 2004.[24] Two bills introduced in the 2007 state legislative session would establish a state Environmental Justice Advisory Committee and require state environmental agencies to plan a long-range strategy for environmental protection in the state and evaluate the effect of environmental actions on low-income communities.[25]

- **Tennessee:** The state Department of Environment and Conservation completed a Draft Environmental Justice plan in 2000. As of January 2007, Tennessee hired an environmental justice manager to implement this plan.[26]

- **Virginia:** The Virginia legislature studied solid and hazardous waste facilities and found they sometimes disproportionately affect minority communities and that they were inspected less frequently in minority communities. Virginia law also requires the publication of notice and information about local impacts of waste facilities and a public comment process prior to giving a solid waste facility permit. Also under an agreement with the federal government, the Virginia Department of Environmental Quality can allow violators of federal pollution laws to perform "Supplemental Environmental Projects" (SEPs) as a substitute for some or all of their fines. Impacts on minority or low-income populations must be considered before SEPs are approved.[27]

Ways to go beyond a patchwork approach

Environmental justice laws in Southern states include many good ideas, but ultimately are a patchwork covering some industries and impacts, but not others. Often, the laws seem to provide for inadequate public notice and participation and fail to account for cumulative impacts. As the example at the beginning of this chapter suggested, environmental justice laws simply provide the basic protections for poor or minority communities that any community or citizen would want. These include analyzing projects for unfair impacts, making sure affected communities are notified early in the process that a decision will be made and promoting meaningful community involvement in the decision-making process. This common-sense involvement benefits all citizens because it helps prevent any one area from becoming so degraded that it is a health hazard or a drag on the local economy.

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Recommendation 15: Every Southern state should enact a basic, comprehensive environmental justice law that guarantees analysis of potential disparate and cumulative impacts, thorough and early notice, and meaningful public participation in environmental permitting decisions.

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Southern lawmakers may want to consider including the following provisions in new, comprehensive environmental justice rules:

1. Broad coverage: Current Southern environmental justice laws focus on the solid waste industry, even though other activities may emit as much or more of certain types of pollution. Regulation should apply to all facilities seeking permits or engaging in activities leading to significant environmental impacts, based on the type and severity of impacts rather than on the type of industry.

2. Cover siting and renewal: Current law focuses more on reviewing decisions to site new facilities than on renewal of old permits. This means that old, very polluting facilities may be unfairly favored over new, cleaner facilities which actually keeps improved facilities away. Environmental justice rules should require analysis, notice and public participation for renewal or modification of permits for existing activities that have substantial environmental impacts.

3. Provide useful information to the public: For each major project requiring environmental permits (such as air, water or hazardous waste permits), the state should require an environmental justice analysis that outlines the benefits and burdens placed on different communities, including any effects on low-income and minority communities and children. This analysis should include an examination of cumulative and secondary impacts of issuing the permit, and consideration of alternatives that may reduce such impacts. Rules should provide a mechanism for affected communities to be involved in the design and implementation of the analysis to ensure it is unbiased and covers issues relevant to the community.

4. Provide effective public notice: Current notice rules often require publication of a notice in the announcement section of a local newspaper or business publication. Agencies also often notify persons who have indicated in advance that they are interested by e-mail. Broader and more specific notice requirements are needed to actually reach residents affected by permitting decisions. Community leaders and entities, such as health clinics and churches, should be notified with materials in Spanish or other languages when appropriate. Notification should occur well in advance of permitting decisions.

5. Public comment period: In promoting public awareness and participation, some laws require either public notice, a public comment period or a hearing. All three are necessary for significant projects. Additionally, a state's permitting agency should be required to consider and explicitly respond to the public's comments.

6. Proactive building of awareness: States that proactively promote awareness may want to consider including funding research on the effects of cumulative and multiple exposures to pollutants in coordination with state and federal health agencies. Other ideas: An Internet page listing of Superfund and toxic release sites and other sites or information on permit issues that could affect public health; and continuing involvement of a statewide commission or advisory group on environmental justice.

Environmental justice provides good opportunity for leadership

The law of environmental justice is in flux at the federal and state levels. This is an opportunity for leadership among Southern states, which already have shown some innovation in this area. Comprehensive rules requiring disparate impact analysis, thorough notice and meaningful participation would provide to low-income and minority communities the basic protections all citzens deserve.

If a state wants to ensure the best quality of life for its citizens, it should embrace an open process for environmental issues that respects the rights of people as much as businesses that want to profit in the area near where people live.

Promoting environmental justice also is common sense. If a state wants to ensure the best quality of life for its citizens, it should embrace an open process for environmental issues that respects the rights of people as much as businesses that want to profit in the area near where people live. While businesses may holler that

notification processes would create another burden on business, government regulators owe it to taxpayers and voters to ensure decisions are made fairly.

More broadly, having a thorough environmental justice process would bring sunshine into the permitting process for all citizens, promoting an examination and reduction of toxic pollution before it happens, rather than blight and recrimination afterwards. All communities benefit from the siting and operation of clean industries, but none is truly helped by pockets of severe and unfair degradation.

Talking points

- "Environmental justice" is the idea that a government should be careful to treat all communities fairly when it makes decisions that allocate environmental benefits or burdens.

- In the South, environmental justice issues should be a pressing concern due to a history of racial disparity and less comprehensive environmental regulation than in the rest of the nation.

- Because the federal courts have limited federal efforts on environmental justice issues, Southern legislatures have the responsibilities—and great leadership opportunities—to ensure people in their states are treated fairly in sharing the burdens and benefits of environmental decisions.

- While Southern states have shown some innovation in environmental justice issues, there's still a long way to go. Throughout the South, landfills, hazardous waste facilities,

power plants and industrial complexes have tended to have been located near poor and minority communities.

- Creating comprehensive environmental justice rules is common sense. Such rules will benefit all citizens because they will help to prevent any single geographic area from becoming so degraded that it is a health hazard or drag on an entire local economy.

- Southern states should embrace comprehensive environmental justice regulations to improve people's quality of life and to respect the rights of people to live in their communities as much as the rights of businesses to profit from the area where those people live.

Endnotes

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[18] Ibid., p. 26.
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[23] "Environmental Justice in the News," U.S. E.P.A., March 30, 2007
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BETTER LIVING

Practical ways to be greener every day

Each Southerner should take proactive steps to live greener to save money, improve the environment and reduce energy consumption.

Just about everywhere you turn these days, you hear or see messages about living greener. There's Al Gore's movie, *An Inconvenient Truth*, which preaches the gospel that global warming is real. Companies such as The Home Depot put out special advertising sections of green product alternatives to capture consumer interest and persuade people they're a "green" company. Multiple conservation and environmental groups offer scores of policy alternatives. Even the 2008 presidential candidates are talking about the environment and climate change after conveniently leaving it off the debate table in 2004.

Across the United States, gasoline approaches or is at $3 per gallon and energy policy is central to the Presidential campaign for the first time in more than 30 years. And people are talking about all sorts of power: nuclear, "clean coal," solar, wind, hydrogen, biomass and more. In fact, the policy arena is so packed with different ways to get the energy we need to fuel our lifestyles in a more ecologically-sensitive manner that it's a big bowl of mush for most Americans. It's almost as if there is too much green information, but none of it makes practical sense on how they can live greener and live better.

To cut through the information overload, we offer a few of the more popular ideas on how regular folks can make a difference and live greener. Most will have a beneficial effect on cutting greenhouse gas emissions, but all will allow us to live better with nature.

1. Change your lightbulbs

One of the easiest things you can do—and one of the most talked about—is to replace your incandescent light bulbs with compact fluorescent bulbs (CFLs). They're four times more energy efficient that regular bulbs.[1] By replacing 15 incandescent bulbs with energy efficient CFLs, you'll avoid emitting more than a ton of carbon dioxide every year, according to the National Wildlife Federation.[2] While these bulbs cost more than regular incandescent bulbs, CFLs will more than pay for themselves as energy savings approach $50 a year with just five bulb replacements.

2. Recycle

It seems like just about anything can be recycled these days, yet a majority of Americans don't take advantage of what they can recycle. "Increasing the recycling rate in the United States from 30 percent to 60 percent would save the equivalent of 315 million barrels of oil each year,"[3] according to Newsweek. To give you some perspective, that is about 4 percent of what's used annually in the United States.[4] Learn more about recycling everything from aluminum cans, batteries and computers to paint, cell phones and newspapers by contacting your local solid waste agency or going online to Earth911.org and the National Wildlife Federation (*www.nwf.org*).

3. Conserve water

The average American household uses about 350 gallons of water every day, according to the American Water Works Association.[5] Almost three quarters of the usage comes from three sources: toilets (28 percent), washing machines (22 percent) and showers (21 percent).[6] By focusing on conserving water in just those three areas—and not including leaky faucets, irrigation systems or other appliances—you can realize major cost, energy and water savings:

- **Toilets.** A leaky toilet can waste as much as 200 gallons of water a day, according to the American Water Works Association.[7] And if your home was built before 1993, you might want to replace your toilet. Toilets made before 1993 used 3.5 gallons per flush to 8 gallons per flush, compared to today's higher-efficiency toilets that use 1.6 gallons per flush, according to H2ouse.org.[8]

- **Washing machines**. Today's energy efficient washing machines use less water and are built to clean effectively in cold water.[9] You'll reduce energy usage by cleaning in warm or cold water. Replacing old machines with new ones will save about twice as much water. Even better: Your clothes will dry faster because the washer spins more water out of them.

- **Showers.** New showerheads can't exceed 2.5 gallons of water per minutes. But if your showerhead has been on since before 1992, it may pump 5.5 gallons per minute. Using lower-flow showerheads can allow you to achieve water savings of up to 60 percent.[10] According to the National Wildlife Federation, "using less hot water by installing a low flow showerhead and washing clothes in cold or warm water" can allow you to

cut 850 tons of carbon dioxide per year and save up to $40 annually.[11]

Other ways to save water and energy are to replace traditional water heaters with instant water heaters; stop leaky faucets and irrigation systems; use native plants to reduce garden water usage; and water only the plants you need. For more good ideas, go to: *www.h2ouse.org*.

4. Eat locally

A well-known bumper sticker, "Think Globally, Act Locally," has no greater relevance than in the context of the food you eat every day. Research shows that most food in the United States travels an average of 1,500 miles from farm to table.[12] In other words, transporting food to the dinner table leads to an enormous expenditure of energy to deliver it.

"About 10 percent of all the energy used in America goes to farming food, processing food, transporting food, from the seed to the plate," Denis Hayes, coordinator of the first Earth Day, told MarketWatch in May 2007.[13] "If you can just buy that same vegetable from somebody that lives on the outskirts of your community, the energy savings are stunning."

This growing local food movement encourages people to buy locally to cut down on transportation and associated energy costs, and to help the back pockets of local farmers. According to LocalHarvest.org, "We can start now by buying locally grown food whenever possible. By doing so you'll be helping preserve the environment, and you'll be strengthening your community by investing your food dollar close to home. Only 18 cents of every dollar, when buying at a large supermarket, go to the grower. 82

cents go to various unnecessary middlemen. Cut them out of the picture and buy your food directly from your local farmer."[14]

5. Be smarter with your transportation

It stands to reason that the better the gas mileage your car gets, the more fuel efficient and less wasteful of energy it is. For example, a car that gets 30 miles to the gallon, compared to one that gets 15 miles per gallon, will emit 8,000 pounds less of carbon dioxide per year (based on 12,000 miles driven annually).[15]

While driving a more efficient car will create huge energy savings, there are a host of other things you can do to be smarter about how you move from place to place:

- **Combine errands.** Making several short trips causes you to turn on your cold engine a few times, which is more wasteful than doing errands all at once.[16]

- **Be a smoother driver.** Fitful driving with starts, stops and a lot of hard braking can reduce your fuel efficiency by one-third, according to GreenerChoices.org.

- **Keep in tune.** Keeping your car properly tuned and oiled will improve mileage. Similarly, checking the pressure of your tires will improve efficiency. (Check monthly to account for air loss and temperature.)

- **Use public transportation or carpooling.** Riding with others provides big energy savings and should allow you to save big money.

6. Buy green power

You can cut the nation's dependence on oil and coal by purchasing so-called "green power" – renewable energy generated from solar, wind, biomass, hydro and geothermal power sources.

"By choosing to purchase a green power product, you can support increased development of renewable energy sources, which can reduce the burning of fossil fuels, such as coal, oil, and natural gas," according to the U.S. Department of Energy.[17] "Greater reliance on renewable sources also provides economic benefits and can improve our national energy security."

More information on renewable energy: National Renewable Energy Laboratory (*http://www.nrel.gov/learning/*).

7. Conduct an energy audit

A home energy audit will allow you to find all sorts of places around your house where you can save energy - - from sealing ducts to improving insulation and more.[18] By addressing places that waste energy, you'll also save money over time. Experts say you may be able to reduce up to 11,000 pounds of carbon emissions a year and cut annual home heating and cooling costs by 40 percent by implementing suggestions from a home energy audit. A couple of tools:

- **Home Energy Saver** (*http://hes.lbl.gov/*) – An easy-to-use Web-based audit tool to help you identify major savings.

- **Personal emissions calculator** (*http://www.epa.gov/climatechange/emissions/ind_calculator.html*) – Another Web-based tool on how you can reduce emissions in your home.

8. Choose energy-efficient appliances

As outlined in Chapter 3, using energy-efficient appliances can generate tremendous savings. Southerners could reduce electricity demand by the equivalent of what's produced by 10 new power plants if states adopted basic appliance energy efficiency standards.

But just because Southern states haven't yet adopted these standards, you can personally. By buying energy-saving appliances now, you can realize dramatic environmental savings. Examples:

- **Central air.** Buying an energy-efficient Energy Star central air conditioner with a 14 SEER (Seasonal Energy Efficiency Rating) will save 1,540 pounds of carbon dioxide emissions annually compared to a 10 SEER system.[19] [Note: Even more efficient models are available].

- **Entertainment.** "The average U.S. home has two TVs, a VCR, a DVD player and three telephones. If everyone replaced these with Energy Star® models, which meet strict energy-efficiency guidelines, it would be the equivalent to taking more than 3 million cars off the road."[20]

- **Water heater.** By replacing your old water heater, you can get carbon savings of up to 3,200 pounds annually, according to GreenerChoices.org. More savings can be realized by turning down your water heater to 120 degrees, which is hot enough for most needs.

9. Check the thermostat

Using a programmable thermostat will allows you to turn down the temperature at night in cold months or turn it up in warm months, both of which allow you to save energy when you sleep. A 10 degree change can allow you to save up to 20 percent on your energy bill, according to GreenerChoices.org.

10. Compost waste

About 30 percent of household waste is organic – one third from food scraps and two thirds from yard waste. By comparison, glass is only 5.5 percent.[21] Composting is the perfect way to "reuse, reduce and recycle" because it allows you to enrich soil with compost and keep extra bulk out of landfills, which extends their life spans.

Composting is environmentally responsible as well because "by reducing the amount of raw garbage entering landfills, [it] also helps to reduce the amount of methane and other gases produced there. According to the U.S. EPA, landfills are the largest single human source of methane emissions in the U.S., accounting for 33 percent of all methane sources. Methane gas contributes to global climate change, and is of particular concern because it is 21 times more effective at trapping heat in the atmosphere than carbon dioxide."[22]

11. Plant trees

Planting a tree is an easy way to make a long-term impact on your environment. Not only do trees increase the value of property, they also provide shade, which can reduce strain on air

conditioners in the summer.[23] But even more importantly, trees absorb carbon dioxide, which reduces the amount of carbon emissions into the atmosphere and slows global warming.

According to a fact sheet by the Colorado Tree Coalition, "A single mature tree can absorb carbon dioxide at a rate of 48 pounds per year and release enough oxygen back into the atmosphere to support two human beings."[24] In fact, if every American family planted one tree, a billion pounds of carbon dioxide would be absorbed and not released into the atmosphere. The fact sheet provides multiple citations of more information on the value of planting trees. If you want to get some free trees, you can join the National Arbor Day Foundation for $10 (*www.arborday.org*).

12. Other ideas

If you're really serious about reducing your personal carbon footprint, saving energy and saving money, there are a host of resources that can provide neat ways for you to become greener. Just type in "tips to save energy" or "how to be greener" or any sort of variation and you'll find dozens of green ideas. Here are a few more to consider:

- Pay your bills online.
- Use natural cleaners like borax, vinegar or lemon juice, all of which are more eco-friendly than traditional chemicals.
- Recycle more of your household waste, including electronic components, paint and more.

- Ride in carpools.
- Adorn your yard with native plants that need less watering.
- Insulate your home better.
- Use shades and blinds to keep bright sunlight from getting into rooms in the hot part of the summer. Or go a step further and replace traditional windows with highly-efficient low-e windows.
- Get an old-fashioned clothes line to dry your laundry.
- Turn off your computer or put it to "sleep" mode when you're not using it.
- Replace your air conditioner filters regularly.
- Keep the coils under your refrigerator clean so the motor doesn't have to run as long.
- Keep your tires properly inflated.
- Look into installing solar panels to provide some of your power needs.
- Stay informed. Finally, there are a host of online newsletters you can receive by e-mail. For example, you can get frequent updates on energy from the Alliance to Save Energy (*www.ase.org*), land conservation from the Trust for Public Land (*www.tpl.org*) and solar energy from Solarbuzz.com. You can learn more about what's going on with Southern forests from the

Dogwood Alliance (*www.dogwoodalliance.org*) or about green buildings from your state's chapter of the U.S. Green Building Council (*www.usgbc.org*).

Talking points

- In today's interconnected world, it is relatively easy to find smart and simple ways to reduce your dependence on traditional energy sources.

- Saving energy is now mainstream because it reduces America's dependence on foreign oil and adds to national security.

- Everybody can save energy with modest investments that pay for themselves quickly.

- There's no need to wait on more federal or state action. Implementing just a few of the ideas in this chapter will put you and your family well on the way to becoming greener.

Endnotes

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SUMMARY OF RECOMMENDATIONS

BETTER CLIMATE

Recommendation 1: Each Southern state should designate a leadership body on global warming to develop a statewide global warming emissions reduction plan.

Recommendation 2: Each Southern state's global warming emissions reduction plan should establish a target reduction that at least reduces emissions to 1990 levels by 2010 and 10 percent below that level by 2020.

BETTER AIR

Recommendation 3: Southern state legislatures should push for faster and bigger emission reductions, especially for mercury, than those required by the federal program. Southern state legislatures also should make sure that the greatest possible power plant nitrogen oxide and sulfur dioxide pollution reductions actually happen in their home states rather than through buying credits elsewhere.

Recommendation 4: Each Southern state legislature should fund a diesel clean-up program designed to yield maximum health benefits for its state.

BETTER POWER

Recommendation 5: Each Southern state should create a Public Benefits Fund that invests 2 percent to 3 percent of utility bill charges into strategies that boost energy efficiency, generate more renewable energy and provide low-income energy assistance.

Recommendation 6: Adopt energy-efficient appliance standards so consumers aren't forced to buy outdated technology.

Recommendation 7: Southern states should set a "Renewable Energy Standard" that requires utilities to get an increasing share of energy from renewable sources.

BETTER CARS

Recommendation 8: Each Southern state should adopt the Clean Car program to fight global warming, save money and reduce air toxics.

BETTER BUILDINGS

Recommendation 9: Southern states should require that all new state government buildings or retrofit projects meet LEED Silver or better green building standards.

Recommendation 10: Southern cities and counties should require that all local government facilities meet LEED Silver or better green building standards, and they should provide preferential permitting for private sector construction that meets these standards.

Recommendation 11: Local schools should be built to a LEED/CHPS standard. State and local governments should require LEED buildings and more.

BETTER LAND PROTECTION

Recommendation 12: Every Southern state should boost dedicated revenue and bond funding for land conservation to at least $1 per person per month, and should maintain at least an acre of state parks for every 30 residents.

Recommendation 13: Southern states should provide incentives to encourage localities to implement strategic countywide land conservation plans.

Recommendation 14: Southern states should emulate Virginia's encouragement of permanent private land conservation through state tax credits that enhance federal tax incentives for land preservation.

BETTER DECISIONS

Recommendation 15: Every Southern state should enact a basic, comprehensive environmental justice law that guarantees analysis of potential disparate and cumulative impacts, thorough and early notice, and meaningful public participation in environmental permitting decisions.

BETTER LIVING

Among the suggestions for individuals to consider to make a difference in their households:

- Change your lightbulbs
- Recycle
- Conserve water
- Eat locally
- Be smarter with your transportation
- Buy green power
- Conduct an energy audit
- Choose energy-efficient appliances
- Check the thermostat
- Compost waste
- Plant trees

APPENDICES

APPENDIX 1:
Southern mayors and cities committed to reducing climate change emissions

AL	Bessemer	Edward E. May	29,672
AL	Huntsville	Loretta Spencer	158,216
AR	Fayetteville	Dan Coody	58,047
AR	Little Rock	Mark Stodola	183,133
AR	North Little Rock	Patrick Henry Hays	60,433
FL	Coconut Creek	Rebecca A. Tooley	43,566
FL	Cooper City	Debby Eisinger	30,022
FL	Coral Gables	Don Slesnick	42,249
FL	Coral Springs	Scott J. Brook	117,549
FL	Dania Beach	Pat Flury	28,782
FL	Delray Beach	Jeff Perlman	60,020
FL	Gainesville	Pegeen Hanrahan	95,447
FL	Hallandale Beach	Joy Cooper	34,282
FL	Holly Hill	William D. Arthur	12,119
FL	Hollywood	Mara Giulianti	139,357
FL	Key Biscayne	Robert Oldakowski	10,507
FL	Key West	Jimmy Weekley	25,478
FL	Lauderdale Lakes	Samuel S. Brown	31,705
FL	Lauderhill	Richard J. Kaplan	57,585
FL	Miami	Manuel A. Diaz	362,470
FL	Miramar	Lori C. Moseley	72,739
FL	North Miami	Kevin Burns	59,880
FL	Oakland Park	Steven R. Arnst	30,966
FL	Parkland	Michael Udine	22,145
FL	Pembroke Pines	Frank C. Ortis	137,427
FL	Plantation	Rae Carole Armstrong	82,934
FL	Pompano Beach	John C. Rayson	78,191
FL	Port St. Lucie	Robert E. Minsky	88,769
FL	Sunrise	Steven B. Feren	85,779
FL	Tallahassee	John Marks	150,624

FL	Tamarac	Beth Flansbaum-Talabisco	55,588
FL	Tampa	Pam Iorio	303,447
FL	West Palm Beach	Lois J. Frankel	82,103
FL	West Park	Eric H. Jones	12,713
GA	Athens	Heidi Davison	101,489
GA	Atlanta	Shirley Franklin	416,474
GA	Decatur	William "Bill" Floyd	17,884
GA	East Point	Patsy Jo Hilliard	39,595
GA	Macon	C. Jack Ellis	97,255
GA	Tybee Island	Jason Buelterman	3,400
KY	Lexington	Teresa Isaac	260,512
KY	Louisville Metro	Jerry E. Abramson	694,000
LA	Alexandria	Edward Randolph, Jr.	46,342
LA	New Orleans	C. Ray Nagin	484,674
MS	Meridian	John Robert Smith	39,968
NC	Asheville	Charles R. Worley	68,889
NC	Boone	Loretta Clawson	13,192
NC	Carrboro	Mark Chilton	16,800
NC	Chapel Hill	Kevin C. Foy	48,715
NC	Durham	William V. "Bill" Bell	187,035
NC	Highlands	Dr. Don Mullen	941
NC	Wilmington	Bill Saffo	75,838
NC	Winston Salem	J. Allen Joines	185,776
SC	Charleston	Joseph P. Riley, Jr.	96,650
SC	Columbia	Robert D. Coble	116,278
SC	Greenville	Knox H. White	56,002
SC	Sumter	Joseph T. McElveen, Jr.	39,643
TN	Chattanooga	Ron Littlefield	155,554
TN	Cookeville	Charles Womack	27,648
TN	Nashville	Bill Purcell	592,099
VA	Alexandria	William D. "Bill" Euille	128,283
VA	Blacksburg	Ron Rordam	39,573
VA	Charlottesville	David E. Brown	45,049
VA	Richmond	L. Douglas Wilder	197,790

VA	Virginia Beach	Meyera E. Oberndorf		425,257
VA	Williamsburg	Jeanne Zeidler		11,751
			Total:	***7,574,300***

Source: U.S. Mayor's Climate Protection Agreement, accessed January 26, 2007 at *http://www.seattle.gov/mayor/climate/default.htm#who*

APPENDIX 2: Energy use per capita by state

U.S. Per Capita Electricity Use By State (2003)				
State Rank	**State**	**kWh (million)**	**Estimated Population**	**Per Capita Electricity Use (kWh)**
1	Wyoming	13,254	501,915	26,407
2	**Kentucky**	**85,220**	**4,116,780**	**20,701**
3	**Alabama**	**83,844**	**4,501,862**	**18,624**
4	**South Carolina**	**77,054**	**4,146,753**	**18,582**
5	**Louisiana**	**77,769**	**4,490,380**	**17,319**
6	**Tennessee**	**97,457**	**5,841,585**	**16,683**
7	North Dakota	10,461	633,051	16,525
8	Indiana	100,468	6,196,269	16,214
9	**Arkansas**	**43,108**	**2,726,166**	**15,813**
10	**Mississippi**	**45,544**	**2,880,793**	**15,810**

Source: California Energy Commission at *http://www.energy.ca.gov/electricity/us_percapita_electricity_2003.html.*

APPENDIX 3:
Southerners pay more for electricity overall

Compared to national average

STATE	Avg Cost per kWhr (in cents)	Per Capita Annual Spending on Electricity
Louisiana	7.13	$1,235
South Carolina	6.22	$1,156
Alabama	6.08	$1,132
Mississippi	7.00	$1,107
Florida	8.16	$1,044
Tennessee	6.14	$1,024
North Carolina	6.97	$1,004
Kentucky	4.63	$ 958
U.S. average	**7.62**	**$ 940**
Georgia	6.58	$ 930
Arkansas	5.67	$ 897
Virginia	6.43	$ 882.
California	**11.41**	**$ 771**

Source: California Energy Commission at *http://www.energy.ca.gov/electricity/us_percapita_electricity_2003.html.*

APPENDIX 4: Estimated savings

STATE	PEAK POWER DEMAND AVOIDED	COST SAVINGS THROUGH 2030
Alabama	232 Megawatts	$518 million
Arkansas	119 Megawatts	$343 million
Florida	857 Megawatts	$2,064 million
Georgia	288 Megawatts	$995 million
Kentucky	152 Megawatts	$334 million
Louisiana	252 Megawatts	$658 million
Mississippi	147 Megawatts	$352 million
North Carolina	272 Megawatts	$942 million
South Carolina	142 Megawatts	$469 million
Tennessee	235 Megawatts	$581 million
Virginia	225 Megawatts	$785 million
TOTAL	2,921 Megawatts	$8,041 million

Source: Steven Nadel, Andrew deLaski, Jim Kliesch, and Toru Kubo *Leading the Way: Continued Opportunities for New State Appliance and Equipment Efficiency Standards*, (American Council for an Energy-Efficient Economy, 2001), iii.

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About the author

Eddy Moore was born in Huntsville, Ala., and grew up in Spartanburg, S.C. He spent many family vacations participating in camping, fishing, shrimping, swimming and swatting mosquitoes at South Carolina's Hunting Island State Park.

Moore earned a bachelor's degree in English at Yale College and a master's degree in U.S. history at American University. He is pursuing a law degree at the Bowen School of Law at the University of Arkansas at Little Rock. For 10 years, Moore worked as a legislative assistant to U.S. Sen. Ernest F. Hollings in Washington, D.C., focusing on education and health policy. For five years, he served at the Planning and Conservation League in Sacramento, Calif., as a senior project manager for improved transportation, energy and water policies.

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