SOUTHEAST ENERGY EFFICIENCY ALLIANCE (SEEA)

ASSESSMENT REPORT

July, 2006

Executive Summary

The purpose of the Southeast Energy Efficiency Alliance (SEEA), a subsidiary of the Alliance to Save Energy, is to build regional partnerships among stakeholders to promote and achieve energy efficiency for a cleaner environment, more prosperous economy, and higher quality of life.

SEEAwill join other regional energy efficiency alliances currently operating and achieving tangible, substantial results throughout the rest of the U.S. Those alliances are the Northeast Energy Efficiency Partnership (NEEP), Midwest Energy Efficiency Alliance (MEEA), and the Northwest Energy Efficiency Alliance (NW Alliance). The Southwest Energy Efficiency Project (SWEEP) could evolve into an energy efficiency alliance, although it is currently focused on policy initiatives.

The Southeast spends only one-fifth the national average, per capita, on energy efficiency programs, and ranks near the bottom among regions in ENERGY STAR ® appliance penetration. While the Southeast lags behind other regions in its actions on to energy efficiency, the Southeast is first among regions in population, population growth, housing starts, and at or near the top in energy generation. The need for energy efficiency is therefore greatest in the Southeast.

SEEA will assist the region since the partnerships it creates will help moderate some of the expected increases in energy consumption from the region's population growth. SEEA will also help gain greater acceptance of energy efficiency as a legitimate energy resource, along with continued generation and transmission additions, in meeting energy demand. In addition, SEEA will help increase market penetration of ENERGY STAR ® products and help ensure that low-income residents are able to take part in energy efficiency initiatives. SEEA, through its programs, will also improve air quality and stimulate job and economic development in the region.

In the Northeast, Midwest, and Northwest, energy efficiency alliances thrive thanks to a rich tradition of energy efficiency program implementation in those regions. The Southeast lacks such a tradition. Nonetheless, the voluntary approaches provided by energy efficiency alliances may be vastly preferred in the Southeast to government-style mandates.

A. SEEA Overview

The SEEA mission statement is as follow:

The Southeast Energy Efficiency Alliance builds regional partnerships to promote and achieve energy efficiency for a cleaner environment, a more prosperous economy, and higher quality of life.

Energy efficiency measures save consumers money, increase consumer comfort, protect the environment, enhance economic competitiveness, and promote energy reliability and

security. The Southeast has the potential to implement numerous energy saving opportunities that would lead to economic and environmental benefits for the region. However, the energy industry, consumers, government agencies, environmental non-profits, and other stakeholders in the Southeast need to work cooperatively to realize the region's energy efficiency potential. To facilitate this collaboration, a group of interested partners began working in May 2003 towards the formation of a regional coalition called the Southeast Energy Efficiency Alliance (SEEA). SEEA's goal of promoting energy efficiency is dependent on the support of all stakeholders in the Southeast.

SEEA's principal goal is to promote and achieve greater energy efficiency levels than are now realized throughout the eleven-state Southeast region: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and, Virginia. Puerto Rico and the U.S. Virgin Islands, which are included in the U.S. Department of Energy's Southern region, and are also members of the Southern Governors Association's Southeast region, may be incorporated into SEEA's region. SEEA will help to protect the environment and this region's high quality of life, empower consumers of all income levels with the means to lower their energy bills, improve markets for energy efficient products, improve the market potential of energy services companies, and contribute to the regional and national dialogues on energy efficiency policies and products.

SEEA seeks close partnerships with existing energy organizations and businesses in the Southeast, including utilities and public power, wholesalers, retailers, state governors' and energy offices, state public utility commissions, environmental and energy non-profit organizations, consumer groups, low-income advocates, and residential, commercial, industrial, and agricultural consumers.

SEEA has joined other regional energy efficiency alliances of our nation located in the Northeast, Midwest, and Northwest. Energy efficiency alliances in these regions have a common purpose: to demonstrate their value tangibly and factually to their partners and their region's consumers, by means of lowered energy bills, lowered air emissions, improved economic productivity, more jobs, and greater business attraction.

The Southeast region is the nation's leader in population, as well as net in-migration, and is consistently ranked among the nation's fastest growing regions. As the region meets the energy needs of its population and business growth through generation and transmission infrastructure additions, SEAA will help assure that energy efficiency takes its place as an essential component of the planning equation.

SEEA is a subsidiary of the Alliance to Save Energy and is based in Atlanta, Georgia. SEEA will hold regular meetings in each state of the Southeast. Funding for a yearlong assessment of SEEA's feasibility and potential was provided by the Alliance to Save Energy. Founded in 1977, the Alliance to Save Energy promotes energy efficiency nationally and worldwide. Its Board members include leading U.S. Senators and Representatives, CEOs of major U.S. corporations, and heads of energy labs, research centers, and major consumer and environmental organizations. A working group

comprised of Southeastern business and organizations was formed to guide this assessment, and met quarterly from 2003-2004.

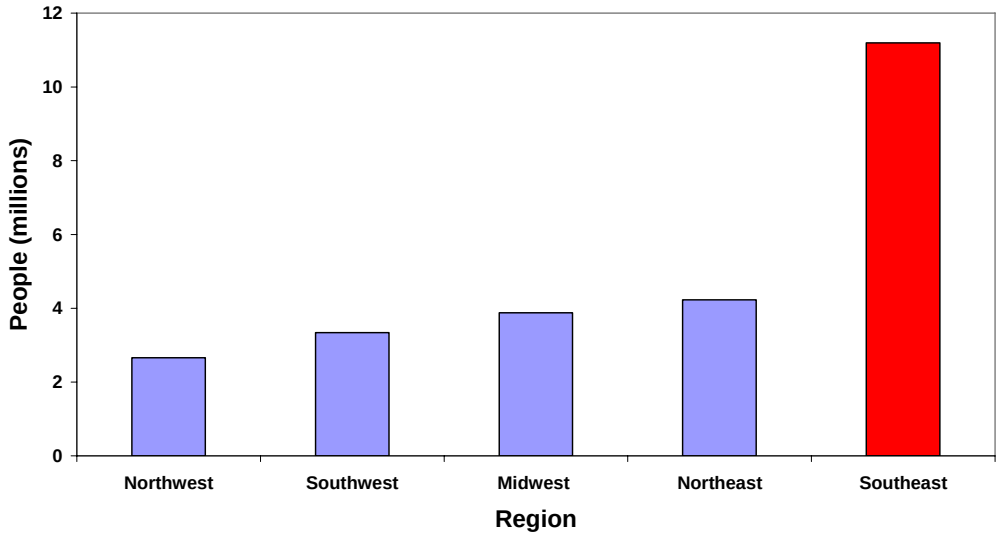
B. Rationale for SEEA's Establishment: Benefits of Further Coordination of Energy Efficiency Activities in the Southeast.

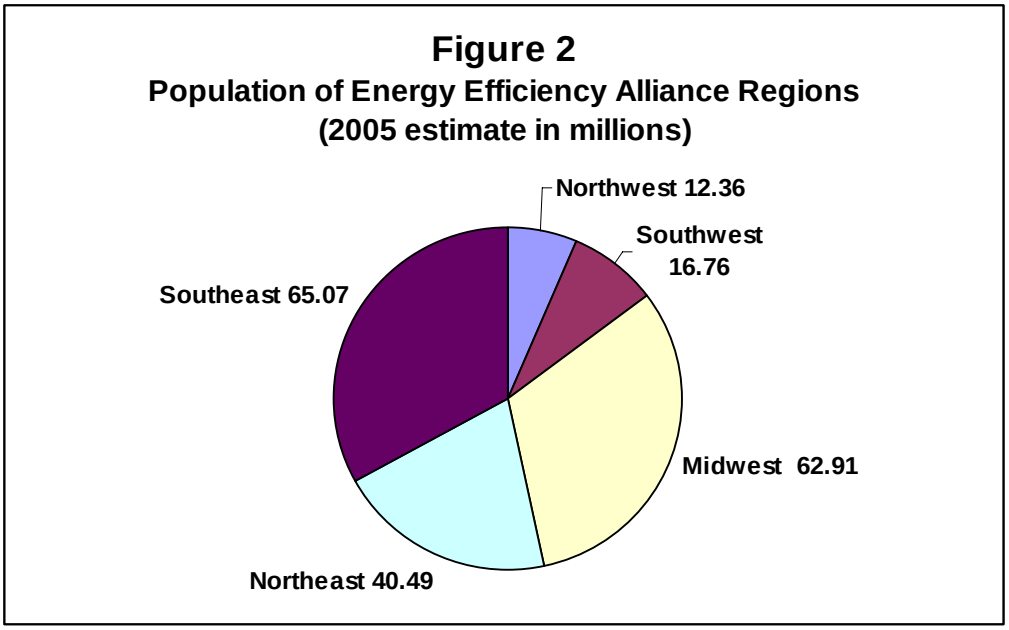
Increased energy efficiency in the Southeast saves consumers money, increases comfort, protects the environment, enhances the economy, and promotes national security by reducing dependency on Middle East oil imports. However, in order for the Southeast to realize the numerous energy saving opportunities that will lead to economic and environmental benefits, the energy industry, consumers, government agencies, and other stakeholders in the Southeast will need to work cooperatively to reach the region's energy efficiency potential. The Southeast Energy Efficiency Alliance (SEEA) will help facilitate this collaboration. The following are some of the benefits that can be derived from energy efficiency initiatives:

1. Helps Moderate Expected Increases in Energy Consumption from Population Growth

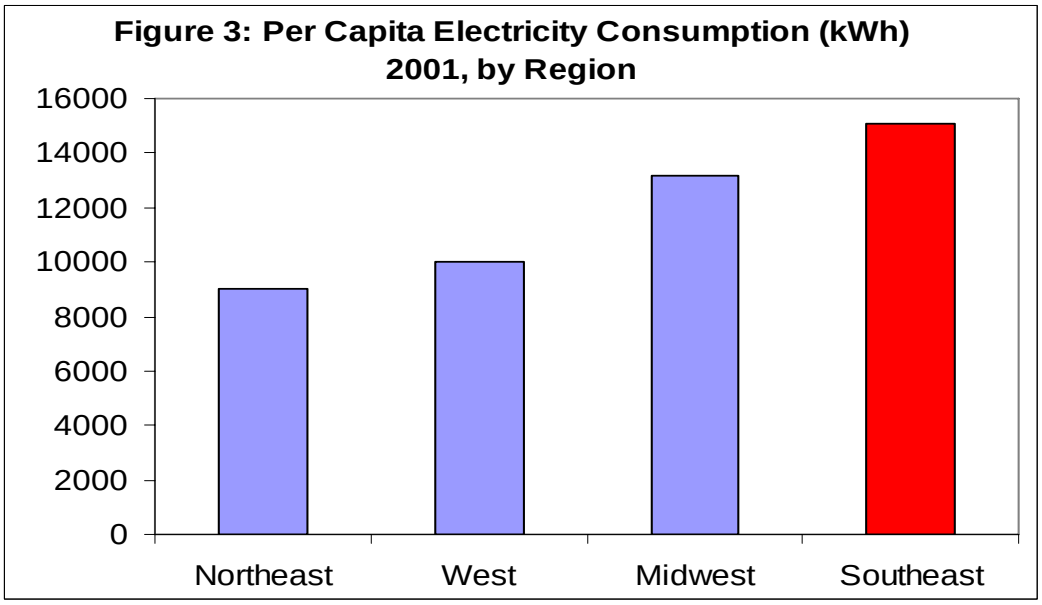
Out of all the regions represented by an energy efficiency alliance, the Southeast is the fastest growing region in the U.S. (see Figure 1). The Southeast region is the largest region in terms of population and has recorded a 20 percent population growth during the past decade (see Figure 2). In 2001, 511,161 privately owned housing permits were issued across the Southeast -- that's 31 percent of the national total for that year.

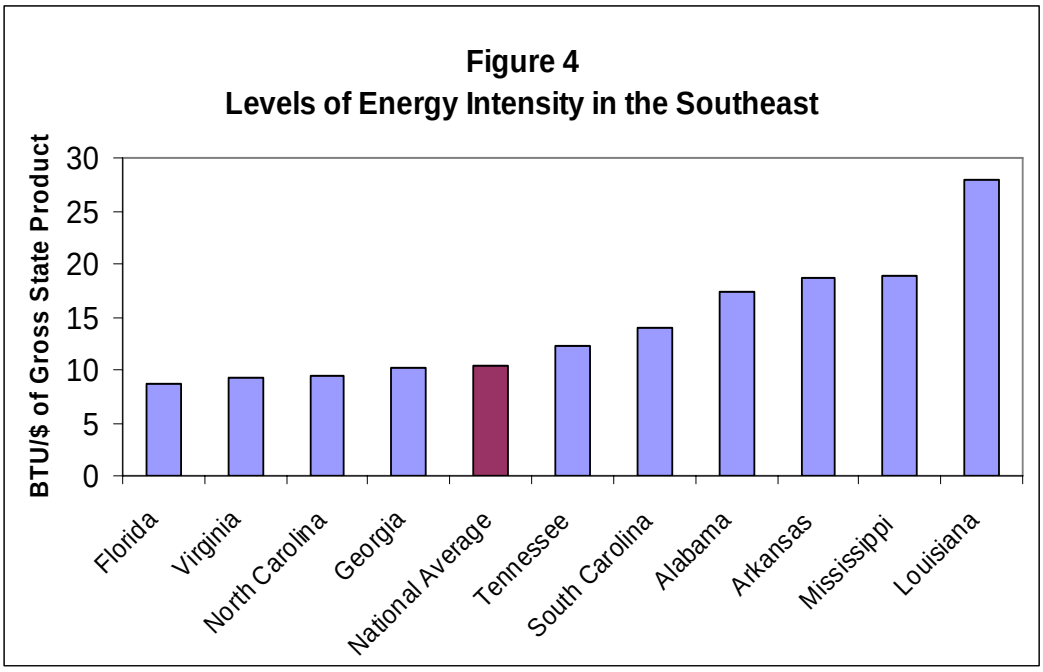
Figure 1
Projected Population Increase of Energy Efficiency Alliance Regions, 2005 to 2025





Energy efficiency measures will help alleviate some negative effects of the substantial increases in energy consumption expected from the Southeast's population growth. Per capita electricity consumption in the Southeast is already among the nation's highest (see Figure 3). In addition, the level of energy intensity, which is the amount of energy consumed to produce one dollar of gross state product, is significantly higher in much of the Southeast compared to the national average (see Figure 4). The region has yet to take advantage of the full economic production potential of the energy it already uses, which means that the Southeast is wasting money on unnecessary energy costs. Therefore, the Southeast is not realizing its full economic development potential.





2. Increases Use of Energy Efficiency as a Planning Tool in the Region

The Southeast is among the nation's leaders in generation capacity (see Figure 5). Moreover, the Southeast in recent years has experienced a surge in new merchant generating plants, built to ship power within the large Southeast region and beyond. The Southeast is also currently engaged in regional planning initiatives designed to build transmission infrastructure necessary to accommodate the growth in generation capacity. However, regional planning should also incorporate energy efficiency measures. According to a report by the Renewable Energy Policy Project, electricity consumption in the South under a "business as usual" scenario—without further energy efficiency improvements—is expected to grow 45 percent by 2020.[1] Unfortunately, the power that is produced in the Southeast is primarily generated from energy sources such as coal (see Figure 6) that adversely affect the region's air quality and contribute to global climate change. While energy efficiency by itself may not reduce total electricity consumption in the region, it can reduce the rate of growth of electricity consumption, enabling the region to maintain its extraordinarily high quality of life.

Figure 5: Generation Capacity by Region in 2001 (Thousands of MW)

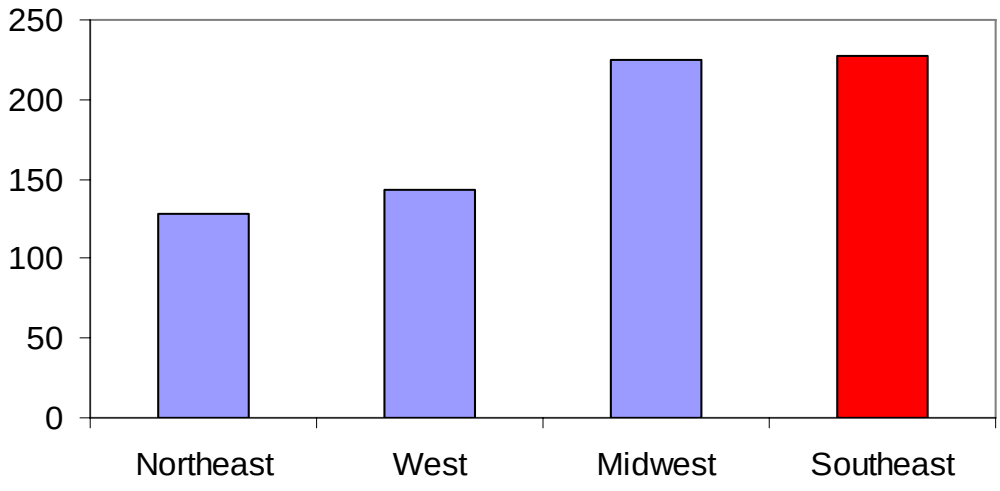
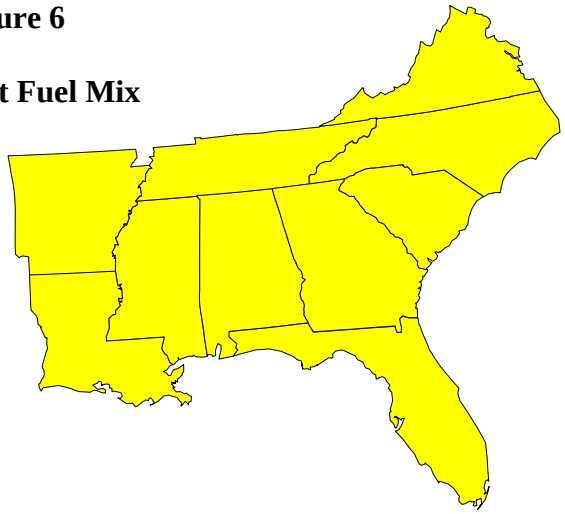


Figure 6

Southeast Fuel Mix

Electricity Generation Fuel Mix

Coal	**49.1%**
Petroleum	**4.9%**
Gas	**12.3%**
Nuclear	**28.0%**
Hydro	**2.6%**
Other	**3.0%**



Energy efficiency is a cost-effective part of an energy portfolio that also consists of generation (including renewables), transmission, distributed generation, and load-shedding or demand response programs. One cannot dispatch energy efficiency as readily as one can dispatch a power plant. Nonetheless, over time, a portfolio of energy efficiency applications can achieve substantial peak demand and energy savings—enough to avoid the need to construct several power plants. At their peak in the mid-1990s, demand-side management programs nationally produced 61,800 gigawatt-hours of savings per year, reducing peak demand by 29,900 megawatts—enough to keep about 60 power plants of 500 megawatts each from being built and operated.[2]

An important tool for the promotion of energy efficiency that is not used in the Southeast is a Public Benefit Fund (PBF) or a system benefit charge (SBC). A SBC, or PBF, is a small add-on charge to customers' electricity bills known as a "wire charge"—usually around a tenth of a cent ("mil") per kilowatt hour—that dedicates a flow of funds to energy efficiency programs in the state. Twenty four states have set in motion a guaranteed stream of funds for energy efficiency programs via SBCs, including: Arizona, California, Connecticut, Delaware, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Vermont, West Virginia, Wisconsin, and the District of Columbia.[3] Currently, not one Southeastern state has a public benefit fund.

Energy efficiency awareness in the Southeast is generally regarded as among the lowest in the nation. New England leads the country by spending a little over one percent of its total energy revenues on energy efficiency programs. However, the Southeast spends just 0.16 percent of total energy revenues on energy efficiency. Only one state in the region –Florida at 0.44 percent—spends close to the national average of 0.47 percent of energy revenues. However, the overwhelming majority of Florida's expenditures are on peak-demand dampening programs, not energy efficiency programs that substantially lower energy consumption. Besides Florida, no other state in the Southeast has made an average commitment to include energy efficiency in its state energy plan.[4] Electric energy efficiency spending per capita in the Southeast is just one-fifth the national average (see Figure 7). Florida, as the clear leader among Southeast states in energy efficiency spending, accounts for much of the Southeast's expenditure totals.

Figure 7
Electric Utility Energy Efficiency Spending
DSM and Public Benefit Funds
(Sample regions: 2000 data)

Region	Spending Per State ($ million)	Spending Per Capita ($)
New England average	33.91	12.10
Midwest average	14.65	2.98
Southeast average	7.37	*0.67
Northwest average *(Washington, Oregon, Idaho, Montana, Wyoming and Utah)*	11.91	4.00
National average	n/a	3.88

Note: Spending does not include State Energy Office and Federal programs.
*More than 50% of this number is from Florida alone.

3. Increases Market Penetration of ENERGY STAR ® Products

In addition to having the highest levels of per capita energy consumption, energy intensity, and population growth rates in the nation, the Southeast region has the lowest levels of ENERGY STAR ® market penetration in the nation (see Figure 8). ENERGY STAR ® is a government-backed program that certifies energy-efficient appliances and other products, and helps businesses improve their energy efficiency by helping them follow the ENERGY STAR ® strategy. In 2002, ENERGY STAR ® helped Americans save enough energy to power 15 million homes and avoid greenhouse gas emissions equivalent to those emitted from 14 million cars - all while saving $7 billion in energy bills.[5] Voluntary, cost-beneficial coordination and application of energy efficiency can produce results that far exceed the effects of government-mandated spending programs.

Figure 8

ENERGY STAR® Market Penetration

ENERGY STAR® appliance sales as % of total sales in 2002

New England	33%
New York	31%
Northwest	29%
California	27%
Alaska/Hawaii	26%
Southwest/Rockies	25%
Mid-Atlantic	24%
Upper Midwest	23%
Lower Midwest	20%
South/Southeast	20%

4. Includes Low-Income Residents in Energy Efficiency Initiatives

The Southeast also lags behind other regions in the country with assistance offered to low-income households to weatherize homes. According to the Low Income Home Energy Assistance Program (LIHEAP), the Southeast falls slightly ahead of only one other region of the country for weatherization assistance (see Figure 9). The Weatherization Assistance Program run by the Department of Energy enables low-income families to permanently reduce their energy bills by making their homes more energy efficient. It is this country's longest running and perhaps most successful energy efficiency program. Low-income families in the Southeast also receive lower overall levels of support, relative to subsides

delivered in other regions, in helping to pay their energy bills (see Figure 10). Low-income families in the Southeast should not have to spend what little discretionary money they have on unnecessary energy costs; they deserve comparable weatherization assistance to families in other regions of the nation.

Figure 9: Average Number of Homes Weatherized by Region 2000-2002

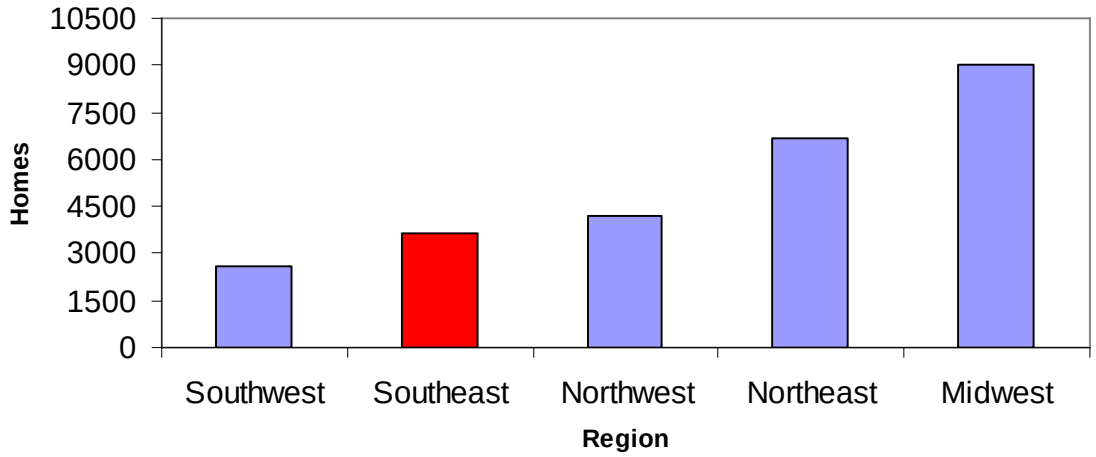
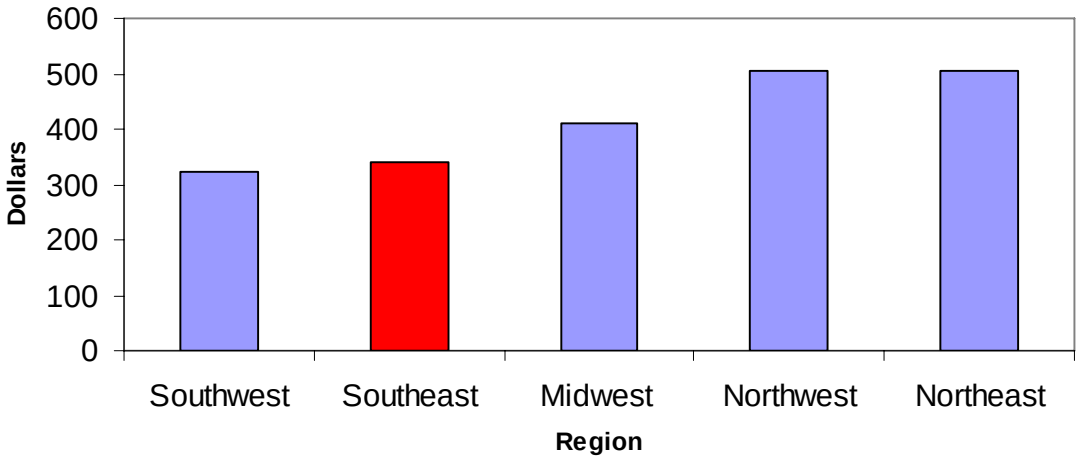


Figure 10: Average LIHEAP Funding per Household by Region, 2003



5. Improves Air Quality

Air emissions from energy generation in the Southeast adversely impact public health, contribute to global climate change, and threaten water quality and wildlife. Increased energy efficiency will help reduce these emissions. In 2000, Southeastern power plants released millions of tons of emissions, including:

- **Carbon Dioxide**: 668 million tons of carbon dioxide (CO_2).[6] CO_2 contributes to global climate change, which will have adverse impacts on Southeast states including potential sea level rises in coastal states and salt water intrusion into fresh water drinking supplies in Gulf states.[7]

- **Sulfur Dioxide**: 3.3 million tons of sulfur dioxides (SO_2).[8] SO_2 causes a wide variety of health and environmental impacts because of the way it reacts with other substances in the air. SO_2 is the main contributor to fine particulate matter, which contributes to respiratory illnesses, such as asthma, and the formation of acid rain.[9]

  The average annual SO_2 output emission rate (lbs/MWh) from power plants in the Southeast is roughly five percent higher than the national average, with plants producing 6.35 pounds of SO_2 emissions for every Megawatt-hour of electricity generated (see Figure 11).

- **Nitrogen Oxides**: 1.4 million tons of nitrogen oxides (NO_x).[10] NOx also causes a wide variety of health and environmental impacts, including the formation of acid rain and ground-level ozone, or smog. When inhaled, even at very low levels, smog can cause acute respiratory problems, aggravate asthma, and inflame lung tissue.[11]

Figure 11
Emissions for Each Megawatt-Hour of Energy Produced in the Southeast

Pollutant	Southeast Average Pounds Per Megawatt-Hour	% Difference from U.S. Average
Carbon Dioxide	1322	5.04 lower
Nitrogen Oxide	2.87	2.95 lower
Sulfur Dioxide	6.35	5.11 higher

6. Increases Jobs and Realizes Economic Development Potential

Studies have demonstrated significant job creation and economic development potential from energy efficiency. The American Council for an Energy-Efficient Economy (ACEEE) has examined the link between economic development and energy efficiency in different regions of the country: Illinois, Midwest (Illinois, Indiana, Michigan, and Ohio), and the Mid-Atlantic (New York, Pennsylvania, and New Jersey). Through improved building codes, appliance standards, HVAC

equipment, lighting, and vehicle and other motor fuel efficiency, ACEEE projected:

Illinois

- **Energy Bill Savings**: A 32 percent reduction of energy use in Illinois, reducing consumer and business energy bills by $76.3 billion through 2015;
- **Job Creation**: An additional 20,700 jobs created by 2005, and 59,400 jobs by 2015;
- **Wage Increases**: A $1.6 billion increase in wages as a result of the expected economic boost;
- **Reduction in Air Pollutants**: Air pollutants from power plants that contribute to smog and particulate formation would be reduced by 30 percent.
- **Benefit-Cost Ratio**: 2.02; and
- **Economic Development**: Equivalent to attracting 400 new small manufacturing plants.[12]

Midwest

A $104 billion investment in energy efficient technologies between 1995 and 2010 would yield:

- **Energy Bill Savings**: $183 billion in cumulative energy bill savings;
- **Job Creation**: An additional 205,000 jobs created;
- **Reduction in Air Pollutants**: Carbon emissions reduced by 26 percent;
- **Benefit-Cost Ratio**: 1.75 (of course, the ratio is actually much higher, since benefits continue beyond 2010); and
- **Economic Development**: Equivalent to attracting 1,367 small manufacturing plants.[13]

Mid-Atlantic

If cost-effective energy efficiency resources were implemented by 2010, benefits would include:

- **Energy Bill Savings**: 22 percent reduction in energy use resulting in the lowering of energy bills by $150 billion, cumulatively (1997-2010);

- **Energy Bill Savings**: $153 billion in cumulative energy bill savings, on an investment of $66 billion;

- **Job Creation**: An additional 164,000 jobs created;

- **Wage Increases**: Wages in the three states would rise by $3.5 billion cumulatively;

- **Reduction in Air Pollutants**: 24 percent reduction in criteria air pollutants, including a 29 percent reduction in carbon dioxide emissions;

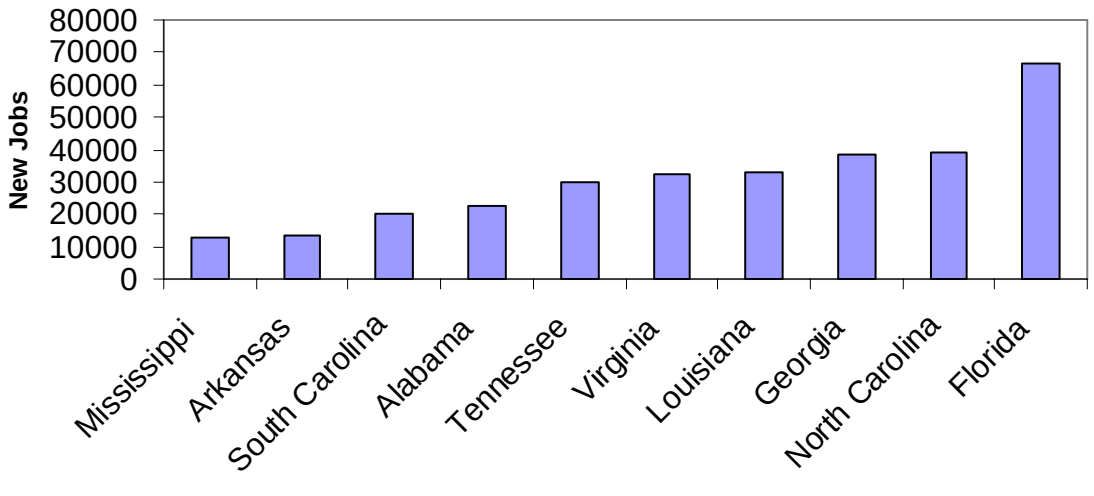
- **Benefit-Cost Ratio**: 2.35; and

- **Economic Development**: Equivalent to attracting 1,095 small manufacturing plants.[14]

Similar economic and environmental benefits can be projected for the Southeast. With a fuel mix for electricity generation in the Southeast consisting of 65 percent fossil fuels, and the majority in coal (see Figure 6), energy savings of the magnitude projected by ACEEE for other regions would significantly improve air quality from levels that the region would otherwise experience. This improved air quality also promotes economic development.

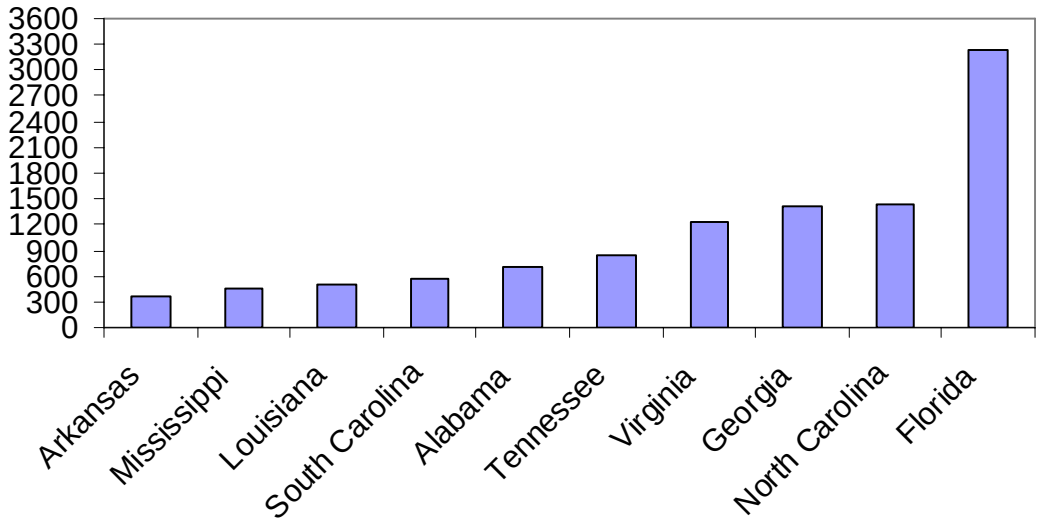
According to studies used by the DOE, implementing clean energy policies in the Southeast, particularly policies that focus on energy efficiency, could bring more jobs to the region (see Figure 12).

Figure 12: Bringing More Jobs to the Southeast: Clean-Energy and Energy-Efficiency Job Creation by 2020



Energy efficiency helps to accommodate future economic growth while maintaining the high quality of life enjoyed in the region. According to the DOE, if higher energy efficiency standards were adopted for a range of appliances, or achieved via voluntary market transformation measures, Southeastern consumers would save billions of dollars (see Figure 13).

Figure 13: Consumer Saving from Higher Appliance Efficiency Standards (Millions of Dollars by 2020)



In summary, continued economic growth and regional prosperity achieved through lower demand for energy than would otherwise be experienced translates into greater productivity, lower energy bills, lower energy intensity, and higher environmental quality; all of which attract additional resources to the Southeast, grow the Southeast's economy, and extend the competitive advantages of this region.

Sources for figures

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Figure 3: Federal Energy Regulatory Commission, *Midwest Energy Infrastructure Conference*, (November, 13, 2002), http://www.ferc.gov/industries/infrastructure/11-13-02-3.pdf

Figure 4: Department of Energy, Energy Efficiency and Renewable Energy Office, *State energy-efficiency Resources*,(June 2003), www.eere.energy.gov/state_energy.

Figure 5: Federal Energy Regulatory Commission, *Midwest Energy Infrastructure Conference*, (November, 13, 2002), http://www.ferc.gov/industries/infrastructure/11-13-02-3.pdf

Figure 6: Energy Information Administration, Department of Energy, Energy Consumption Estimates by Source, 2000, (2000), http://www.eia.doe.gov/emeu/states/sep_sum/html/sum_btu_tot.html.

Figure 7: Environmental Protection Agency, Emissions & Generation Resource Integrated Database, *Emission Totals by State for 2000* (PDF), <http://www.epa.gov/cleanenergy/egrid/pdfs/state.pdf>.

Figure 8: D&R International, http://www.energystar.gov/ia/partners/manuf_res/sales_data_by_region.xls

Figure 9: National Energy Affordability and Accessibility Project, U.S. Department of Health and Human Services, http://neaap.ncat.org/programs/lowincome.

Figure 10: National Energy Affordability and Accessibility Project, U.S. Department of Health and Human Services, http://neaap.ncat.org/programs/lowincome

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Figure 12: Department of Energy, Energy Efficiency and Renewable Energy Office, *State energy-efficiency Resources*, (June 2003), www.eere.energy.gov/state_energy.

Figure 13: Department of Energy, Energy Efficiency and Renewable Energy Office, *State energy-efficiency Resources*, (June 2003), www.eere.energy.gov/state_energy**.**

Figure 14: Alliance to Save Energy Research Compiled from http://www.swenergy.org/, www.mwalliance.org/, www.neep.org/, www.nwalliance.org/.

Endnotes:

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