Southern Air Principles Report

Executive Summary

May 2002

Introduction

Air quality is a shared resource, and all sectors of society bear a responsibility for improving air quality and protecting our natural resources. Scientific research and evaluation show that air pollution is not confined to state boundaries. The southern states are experiencing unprecedented population and economic growth, as well as associated increases in energy and vehicle use, which have contributed to increased air pollution. To ensure clean air and a reliable, affordable energy supply, we must develop new strategies to address issues such as regional haze, ozone, fine particulate matter, acid deposition, and mercury that threaten public health and the environment.

In 2001, the Governors of Georgia, North Carolina, South Carolina and Tennessee entered into a Southern Air Principles agreement, which recognizes that regional air quality problems must be addressed through regional approaches that consider each state's unique qualities and needs. As directed by this agreement, the signatory states have worked together to develop joint multi-pollutant strategies to address the problems of ozone pollution, acid deposition and reduced visibility. The states have also worked together to develop innovative transportation and energy policies that will protect and improve air quality in the South.

To accomplish this charge, a Southern Air Principles Work Group was created with representatives of the states' air quality, transportation and energy agencies. The work group formed three focused groups: 1) developing a joint multi-pollutant strategy, 2) developing innovative transportation policies, and 3) developing innovative energy policies. Because these issues overlap, many of the work group members participated in multiple focus areas. The Air Principles work groups have met frequently by conference call and communicated through electronic mail. Additionally, the representatives working on a joint multi-pollutant strategy held several meetings to work on their charge.

The work groups considered a number of policy options identified as having potential for achieving significant reductions in emissions of pollutants that adversely impact air quality in the Southern Appalachian Mountains, as well as air quality in our towns and cities. They also considered legislative actions and policy decisions within their own states, as well as those occurring on the national level. Each of the work groups has attempted to offer realistic measures that can be adapted to fit each state's unique qualities and needs.

The complete reports of the work groups are attached to this summary.

I. Multi-pollutant Strategy

Air pollution sources, including power plants, emit multiple pollutants that traditionally are regulated independently. Since localized and regional ozone, fine particulate matter, acid deposition, and haze impacts are caused by multiple pollutants, multi-pollutant control strategies may more effectively reduce environmental impacts; provide more efficient control of environmental pollutants; provide for collateral mercury emissions reductions; and support economic competitiveness and cost effectiveness.

Through the Southern Air Principles agreement, the governors recognized that regional air quality problems must be addressed through regional approaches that address each state's unique qualities and needs. The document directed the chief environmental officers of the signatory states to work together to develop and recommend joint multi-pollutant strategies to address the problems of ozone pollution, acid deposition and reduced visibility. The information and recommendations provided by the Southern Appalachian Mountains Initiative (SAMI) were also to be taken into consideration.

Representing their respective chief environmental officers, the air quality directors of Georgia, North Carolina, South Carolina, and Tennessee have met and consulted several times since June 1, 2001. Much of the initial focus was to gather information from other national and regional multi-pollutant strategy initiatives. Several developments, including legislative and policy actions, have occurred since the signing of the Principles. These actions demonstrate the emerging focus on the issue.

The Southern Appalachian Mountains Initiative (SAMI) has completed its technical work and has formulated observations and conclusions. In summary, SAMI concluded that:

- Each SAMI state would receive the most benefit from reductions of emissions from within their own state boundaries. However, the air quality related problems being encountered by SAMI's Class I areas would not be resolved by only controlling emissions within the SAMI states;
- Significant sulfur dioxide reductions are needed for improvement of visibility in the SAMI region and acid deposition in SAMI Class I areas;
- Within the SAMI region, Class I areas and other parts of the Southern Appalachians are very fragile and would benefit from nitrogen oxides control; and
- Controlling ammonia is more important than originally envisioned, so states need to improve their understanding of the sources of ammonia, develop better inventories and seek effective ammonia control approaches.

On September 10, 2001, the Southern Governors' Association (SGA) and the Southern States Energy Board released a report on energy policy in the South at their 67th annual meeting in

Lexington, Kentucky. The SGA report calls for a national energy policy based on maintaining a stable energy market achieved by addressing supply needs, increasing conservation and improving efficiency (Summary of *Energy Policy in the South; Integrating Energy, Environment, and Economic Development: A Balanced and Comprehensive Approach*, September 2001).

The National Governors Association adopted NR-18, Comprehensive National Energy Policy, at its annual meeting in August 2001. An excerpt from the Regulatory and Environmental Issues section states:

> Congress should pass legislation to establish a flexible, market-based program to significantly reduce and cap emissions of sulfur dioxide, nitrogen oxides, mercury, and voluntary reductions of carbon dioxide from electric power generators. The legislation should provide regulatory certainty by establishing reduction targets for emissions, phasing in reductions over a reasonable period of time, and providing market-based incentives, such as emissions-trading credits, to help achieve the required reductions.

Finally, several multi-pollutant Congressional bills have been introduced. In addition, on February 14, 2002, the Bush Administration announced a multi-pollutant strategy, referred to as the Clear Skies Initiative (CSI). While implementation details are still being developed, the Clear Skies Initiative proposes to establish a cap and trade program for nitrogen oxides, sulfur dioxide, and mercury. Further, several states, including North Carolina, have adopted or are considering multi-pollutant strategies.

Multi-pollutant Strategy Recommendations

A. Support and promote strong multi-pollutant legislation for electric utility plants to assure significant reductions of SO2, NOx, and mercury both in and outside the Southern Air Principles states.

Southern Air Principles states will determine the most appropriate strategy to achieve these emissions reductions for their states. Results from SAMI revealed that each SAMI state would receive the most benefit from reductions of emissions from within their own state boundaries. Leadership by states ahead of possible national legislation is encouraged. Because an individual state may not be able to resolve its air quality issues without assistance from neighboring states and other regions, a strong national multi-pollutant strategy helps all states, including those that have reduced emissions from sources within their own borders, towards the goal of clean air. Early reductions obtained from an individual state's efforts should be recognized, encouraged and rewarded by any subsequent national measures.

The Southern Air Principles states recommend a multi-pollutant strategy that:

- Requires significant reductions in air contaminant emissions from electric generating units achieved within a reasonable and certain timeframe.
- Uses a stringent cap and trade program as appropriate and requires significant reductions in air contaminant emissions from electric generating units. The sum of emissions from all electric generating units (both existing and new) cannot exceed the total represented by the cap.
- Assures that local air quality impacts are assessed and then addressed within an expeditious and certain timeframe.
- Includes provisions that will reward and encourage early reductions; provides incentives to achieve these goals; and considers additional pollutants.
- Resolves what is the appropriate level and timing of implementation of the cap; how to allow for new growth; and what should be the appropriate scale of the trading program (individual states, four states, regional, national, etc.).

The reductions of sulfur dioxide, nitrogen oxides and mercury would provide improvements in public health and in regional air quality areas of concern, such as areas affected in a significant adverse way by deposition, visibility, ozone and fine particulate matter.

B. Reductions from other source categories should also be considered in state and national legislation and regulations.

The Southern Air Principles States recognize that sources other than electric power utilities contribute to the sulfur dioxide, nitrogen oxide and mercury emission inventories. As such, they agree to work cooperatively to improve their understanding of the emission sources and to develop strategies for effective emission reductions from appropriate source categories.

C. Recognize the value and importance of all Class I areas and work cooperatively to assure SAMI recommendations are implemented.

The Southern Air Principles states recognize the value and importance of our Class I areas and agree to cooperatively work together with groups such as VISTAS and other appropriate stakeholders in the implementation of SAMI recommendations. The Southern Air Principles states recommend that we assist in the improvement of the understanding of the sources of ammonia, and the development of better inventories and strategies for effective ammonia control approaches. Southern Air Principles states also recommend that SAMI make available to the various Regional Haze Planning Organizations (RPOs) the geographic sensitivity modeling results that show that states within those RPOs collectively impact visibility in the SAMI Class I areas. Furthermore, the level of communication and cooperation between Southern Air Principles states and the federal land managers for our Class I areas has been greatly improved and enhanced as a result of SAMI efforts.

This improved relationship has helped provide greater consideration of federal land manager concerns and provided more certainty in air quality permitting. We recommend that we continue to build on and improve this relationship.

D. Continue to consult, consider and develop strategies as necessary to successfully implement these recommendations.

In order to accomplish the above recommendations, we recommend that the chief environmental officers of the Southern Air Principles states should continue their collaborative efforts and encourage other states' participation in these efforts toward the development of emissions reduction strategies.

E. Provide periodic reports to the Governors.

The chief environmental officers of the Southern Air Principles states will provide periodic reports regarding progress to their Governors and appropriate staff. Such reports are envisioned to be presented on an individual state basis, as well as by way of future Air Quality Summits.

II. Innovative Transportation Options

Air emissions from transportation sources contribute significantly to air quality impairments in the Southern Appalachian Mountains as well as across the Southeast. SAMI projects that mobile source contributions will continue to increase without proactive steps to reduce these emissions. The policy recommendations in this report offer both short- and long-term options to address mobile source emissions across the four states and in the Southern Appalachian Mountains.

A. Alternative Fuels and Vehicle Technologies

Broad availability and use of cleaner vehicles and cleaner fuels are essential components to a southeastern strategy to reduce mobile source air emissions and offset national reliance on imported oil. A southeastern alternative fuels policy will provide both air quality and energy benefits.

Recommendation:

Increase the availability and use of cleaner fuels in the Southeast.

Implementing this goal will require that the states adopt policies that address the availability of alternative fuels, availability of alternative fuel vehicles, and fuel distribution infrastructure. To achieve this goal, the work group recommends that the states adopt the following policy options.

- Develop a southeastern regional network of alternative fuel stations along interstates and major highway corridors. In cooperation with the U.S. Department of Energy (DOE) Clean Cities program, the states should conduct a feasibility study to select initial corridors and identify potential markets and fuel types.

- Develop a broad-based regional consortium to encourage the availability and promote the use of clean and alternative fuel vehicles in the Southeast. Such a regional consortium should include state, federal and local government agencies; fuel producers, suppliers and retailers; vehicle manufacturers and dealers; public and private fleet managers, and others.
- Hold an annual Southeastern Alternative Fuels and Technology Forum beginning in the fall of 2002. The initial forum will seek to identify critical needs and near-term actions necessary to significantly increase the availability and use of clean and alternative fuels and vehicles in the Southeast; develop a consensus between government and the private sector on interstate goals for improving and enhancing alternative fuels infrastructure; and build partnerships with organizations and interests that are committed to building alternative fuels infrastructure.
- Collaborate with local governments, businesses and the U.S. Department of Energy to establish and operate additional Clean Cities programs in the Southeast. The annual Southeastern Alternative Fuels and Technology Forum will support this effort.
- Provide adequate fueling infrastructure for alternative fuel capable vehicles in state fleets in accordance with the spirit of the Energy Policy Act of 1992 and, if appropriate, to make this infrastructure available to local and federal government fleet vehicles.
- Place priority, where feasible, on purchasing alternative fuel vehicles certified to meet low-emission vehicle (LEV), ultra low-emission vehicle (ULEV) or zero-emission vehicle (ZEV) standards and challenge local governments and businesses to match this commitment.
- Identify and facilitate support for the advancement of clean alternative fuels and for vehicle and infrastructure technologies.
- Pursue incentives to promote the availability and use of clean and alternative vehicles, such as tax credits, rebates, and grants and loans for suppliers and users of alternative fuel vehicles and supporting infrastructure.

In deliberating the policy recommendations outlined in this report, the work group considered availability, benefits and disadvantages of the clean and alternative fuels and vehicles marketed and used in the four states. The work group also considered the substantial costs of developing refueling infrastructure and a delivery network. The recommendations focus first on public and private fleets, as existing alternative fuel programs in the four states have concentrated on government and private sector fleets where fuel infrastructure can be centralized and fleet managers have a large degree of control over how the vehicles are used and refueled.

Achieving the goal of increased availability and use of clean and alternative fuels and vehicles will require a concerted, ongoing effort. The states should continue to seek sources of

funding (federal, state and private sector) for necessary studies and planning and development of an infrastructure network that will meet the needs of the four states. Significant challenges in advancing the use of alternative fuels must also be addressed, for example, the relatively small number of alternative fuel vehicles currently in use and the barriers to broader use of alternative fuels by average citizens. Additionally, the states must help public fuel providers understand the advantages and benefits of providing multi-fuel stations and offer incentives that encourage providers and suppliers to invest in infrastructure for multi-fuel stations.

B. Regional Transportation Initiatives

Recommendations:

Develop regional alternatives to automobile travel to address the growing trend in vehicle miles traveled and to provide desirable and efficient alternatives to motor vehicle and air transportation.

- The states should work cooperatively to seek support and funding for an integrated regional transportation system initiative, including an integrated intercity rail plan to connect major cities with other than highways.
- To reduce air pollution in Great Smoky Mountains National Park, the states should support alternative transportation projects to relieve congestion and reduce vehicle emissions inside the park, as well as on major routes used to access the park.
- The states should develop a regional transit partnership that will explore options for an integrated regional transportation system (e.g., intelligent transportation systems, smart card technology, information clearinghouse) that unites transportation systems and tour operations near the park.

A long-term plan for reducing vehicle miles traveled and associated mobile source emissions must include convenient, accessible and affordable mass transit alternatives on the local level as well as from a regional approach. Efforts must also continue to relieve congestion and vehicle emissions inside the national park.

C. Heavy-Duty Vehicle and Equipment Initiatives

Recommendation:

Where feasible, the states should implement strategies to reduce pollution from state-owned and/or operated heavy-duty vehicles and equipment.

The states should consider strategies such as emissions control retrofits, cleaner diesel fuels, accelerated vehicle replacement, repowering, changes in operating characteristic and engine

reprogramming. The states should also challenge local governments, transit operators and businesses to match this commitment.

Heavy-duty vehicles and equipment, including highway and non-road applications, emit significant amounts of fine particulate matter ($PM_{2.5}$) and the precursors that lead to ground-level ozone and $PM_{2.5}$ formation in the Southeast. Although new, more stringent federal emissions standards will be phased in beginning in 2004, heavy-duty engines typically have long service lives and, as a result, the current fleet of dirtier heavy-duty vehicles and equipment will likely be polluting for many more years to come. However, there are several potential barriers to implementing strategies to reduce heavy-duty vehicle and equipment emissions that must be overcome.

D. Southeastern Alternative Fuels and Technology Task Force

Recommendation:

Appoint a Southeastern Alternative Fuels and Technology Task Force to coordinate regional alternative fuels initiatives. The task force would consist of state transportation, energy and air quality officials, and others as determined by the governors. Among its duties, the task force would:

- Plan and hold an annual Southeast Alternative Fuels and Technology Forum in partnership with the U.S. DOE Clean Cities program.
- Establish and work with the regional alternative fuels / technology consortium.
- Act as liaison between the regional consortium and state agencies/environmental chiefs/governors to ensure that state goals and needs are being addressed appropriately. The task force would also serve to communicate the limitations and liabilities of various technologies and fuels to state government.
- Work to lower the barriers to implementation and utilization of clean alternative fuels in the Southeast.
- Identify applicable laws, rules and policies that need to be changed or developed in order to promote a regional alternative fuels network.
- Work within their states to identify and support state fleet purchasing and vehicle use policies needed to promote the purchase and use of clean alternative fuels.

Developing an effective cooperative regional effort will require ongoing participation and responsibility from the state agencies involved. This task force would provide the necessary continuity and communication within and between the four states, other government agencies and private sector partners.

III. Innovative Energy Options

Energy production and consumption clearly have significant environmental and economic impacts on the region. According to projections by the Southern Appalachian Mountains Initiative (SAMI), the Southeast could see a 50 percent increase in electricity generation by the year 2010 as compared to 1990 levels. In comparison, SAMI projects southeastern population growth will be approximately 25 percent during that same time period. These projections assume that growth will continue at the same rate as in the past decade and that no concerted conservation efforts are implemented. As the southeastern states continue to grow, it is incumbent upon state and federal government leaders to take steps to curb per capita energy consumption and to seek means to further reduce associated air quality impacts.

The work group has considered numerous policy options that address air quality issues through energy programs. The following energy policy options address both air quality concerns and energy consumption growth trends in the Southeast.

A. Green Power

Recommendation:

Develop a strong green power network in the Southeast. To promote the development and increased use of green power, the states should—

- Pursue financial incentives that encourage growth and investment in green power technologies.
- Encourage investor-owned, public and rural electric cooperative utilities to offer green power pricing programs.
- Consider means to purchase green power for state-owned and operated buildings.
- Promote commercial and residential use of green power, where available, including incentives for consumer use.
- Partner with the Atlanta Regional Office of the U.S. Department of Energy in cooperative green power initiatives. Annual southeastern green power summits should be held to review current issues in developing green power sources and to support further coordination of projects in the Southeastern states.

Green power incentives throughout the states, such as North Carolina's 35 percent tax credit for green power generators, will encourage economic development, especially for businesses looking to promote their technologies throughout the region. Incentives must also be offered to end-use customers, for example, state or utility loan programs, rebates, tax credits and zoning ordinances designed to reduce financial barriers to green power. There must also be an extensive green power

education program to provide technical information for industry professionals, as well as more general information to the public.

B. Energy Efficiency for Buildings and Industry

Recommendation:

Adopt the new International Energy Code and consider means to encourage compliance with energy-efficient construction standards, such as providing financial incentives to local governments responsible for codes implementation and enforcement.

A vast amount of our energy use occurs in our buildings and industrial sectors, roughly equating to about two-thirds of our total energy consumption. Building energy codes serve not only to improve energy efficiency, but also to reduce energy demand. Energy-efficient buildings have lower energy costs, create less demand for fossil fuels, and reduce or prevent air emissions from new power generation. According to the Building Energy Codes Program, U.S. Department of Energy, strengthening energy codes increases the likelihood of energy and cost savings in new construction and renovations to existing buildings. New buildings can be designed to be both more comfortable and more efficient, cutting heating and cooling costs by close to 50 percent.

In the industrial arena, hundreds of millions of dollars could be saved annually with energy efficiency measures that would average paybacks of three years or less. Much of these savings could be found in troubled industries, such as textiles and furniture, which desperately need to reduce their operating expenses in order to compete effectively in the global marketplace. The states should aggressively market their existing programs or establish new programs that assist industry in reducing its energy use and resulting air emissions through quality energy auditing, training and financial incentive programs.

Recommendation:

Place special emphasis on reducing energy expenditures in public education through energy audits, design and technical assistance, training for school officials and building designers, and adequate capital financing to secure the needed energy improvements for both new and renovated buildings. In both the construction of new facilities and the renovation of existing buildings, states should seek to reduce energy expenditures by at least 30 percent.

In the buildings sector, which constitutes about 36 percent of our energy usage, each of the participating states faces the prospect of spending many billions of dollars over the coming decade for new construction and renovation of public schools and community college and university buildings. These education buildings, where energy expenditures may exceed more than $2 billion

for the four states, drain taxpayer resources for energy expenses that could be more wisely invested in faculty and teacher support, as well as other pressing educational needs.

Recommendation:

Institute a comprehensive and aggressive energy efficiency program for state facilities and universities that will yield a minimum reduction of 30 percent in energy expenditures. Alternative financing strategies, such as performance contracting and the issuance of bonds, should be seriously considered as a possible means of covering the capital expenses of this much needed endeavor.

Energy efficiency improvements in state facilities and related operations could yield substantial cost savings. Given the present budget difficulties in each of the four states, it is an ideal time to reduce energy expenses. For example, Tennessee expects to save $5.1 million annually through energy efficiency in state buildings. Aggressive energy conservation programs would also place the governors in position to lead by example, demonstrating that states can and will take action to control their energy expenditures. Such leadership will give added credibility to other state energy programs that are reaching out to local schools and governments, business and industry, and the general public.

Today, state agencies and universities in the four states are estimated to spend in excess of $700 million annually on their energy bills. A comprehensive energy efficiency campaign in state facilities could reduce this amount by 30 percent or more. Alternative financing strategies, such as performance contracting and the issuance of state bonds, should be investigated to potentially provide a vehicle for raising the capital for such an effort during the present lean budget period.

C. Industries of the Future (IOF) Program for Improving Regional Air

Recommendation:

Expand, broaden and enhance existing state energy efficiency programs for industry to result in significant reductions in air pollutants and costs savings to industry that is increasingly struggling to compete in a global marketplace. States should partner with the U.S. Department of Energy, as in the recent case of Tennessee and North Carolina, to formally establish Industries of the Future programs that seek increased efficiencies and process improvements in selected energy-intensive industries.

Expanding and enhancing existing state and federal energy efficiency programs for industry can achieve large reductions in both energy use and air emissions for the region. The U.S. Department of Energy (DOE) Industries of the Future (IOF) program seeks a 25 percent improvement in energy efficiency and a 30 percent reduction in air emissions for the selected energy-intensive industries by 2010, and a 35 percent improvement in energy efficiency and a 50

percent reduction in emissions for the selected industries by 2020. This program motivates and assists industry with developing technology solutions to critical energy and environmental challenges that will produce additional business and community benefits.

D. Financing Energy Efficiency, Renewable Energy and Low-Income Needs

Recommendation:

Give strong consideration to developing and advocating state legislation that would create a public benefits fund to finance state energy efficiency, renewable energy and low-income energy programs.

Ensuring that our homes and businesses operate in the most efficient manner and that the region's extensive renewable resources are developed over the next decade to meet a large portion of the region's anticipated energy growth requires a mechanism to finance these activities. The need for this financing mechanism has never been greater.

To meet this need and fill the gap created by the elimination of energy efficiency and other programs at utility service companies, the growing trend across the country has been to create a public benefits fund by placing a small charge on each electric utility customer. More than 20 states now have a public benefits fund in place, using a minimal charge of 1 to 3 mills per kilowatt-hour (i.e., 1 mill = .1 of 1 cent). Although this is a very small charge per customer, costing only a few dollars per year, it can generate substantial funds needed for energy efficiency and renewable energy investments, as well as low-income assistance.

Funds collected for a public benefits fund should be used primarily as direct incentives to energy users to employ energy efficiency and renewable energy measures in their homes, businesses, schools and local governments. Outreach and education is an essential ingredient to raising consumer awareness and helping them make sound, informed decisions about the purchase of these energy-related measures. A minority portion of the funds should also be used to educate consumers about the benefits of these technologies and to augment low-income fuel payments when funds from existing sources are exhausted.

E. Renewable Portfolio Standard

Recommendation:

Give strong consideration to developing and advocating for state legislation that would establish a renewable portfolio standard. The requirement of renewable resources, as part of the utilities' overall generation mix, should be set to correlate with the available renewable resource potential and existing resources that are being utilized.

The South's renewable energy resources are among its greatest assets. The region is blessed with the most abundant biomass energy resources in the nation (e.g., animal waste, wood waste,

potential for energy crops and landfill gas). The southern region also possesses good solar and hydro resources and has extensive potential for wind energy in the Appalachian Mountains and along its coastline. Many of these resources are virtually environmentally benign, such as solar and wind power, and the remainder typically have far lower emissions and less environmental disruption than typical fossil fuel plants. The development of these resources, located within the boundaries of our states, leads to less dependence on outside sources of fuel and generates in-state jobs and economic growth.

To accelerate the development of renewable resources, ten states in the nation have taken the lead and established a renewable portfolio standard (RPS). The RPS establishes a minimum percentage of renewable energy generation that is required, usually increasing gradually over a decade or more, to be provided by utility companies in the state. This percentage usually begins at a level near current renewable energy generation and then grows each year. In most states, trading of credits is allowed to enable smaller utilities or those having difficulty developing renewable resources to meet the requirement by buying credits from those who may have developed excess renewable capacity.

F. Interconnection Standards and Net Metering

Recommendation:

Give strong consideration to developing and advocating state legislation, such as that in the state of Georgia, which would allow for net metering and simplified interconnection standards for small renewable energy generators. Net metering laws encourage small-scale renewable generation and, thereby, increase the contribution of these resources to the state's energy mix. Alternatively, a state could also enact net metering rules through the appropriate regulatory authority.

The development of renewable and distributed resources across the South suffers from a lack of clear and streamlined standards that pave the way for easy interconnection of these resources to the utility grid. In many instances, roadblocks and barriers have been placed in front of small generators who wish to sell power. Since many renewable resources are inherently decentralized, removing the barriers to interconnection is essential to tapping their full potential.

To date, 36 states have passed legislation that allows for "net metering" or the exchange of power bought and sold by small generators at the utility company's retail rate. Such laws, now in place in Georgia and nearby Virginia in our region, require only a single meter on a household that runs forward or backward as energy is supplied to or purchased from the grid. Such laws also spell out simple interconnection standards and clarify the process for tying into the utility grid.

Southern Air Principles
Multi-Pollutant Strategy Report

I. Nature of Issue

Air quality is a shared resource, and all sectors of society bear a responsibility for improving air quality and protecting our natural resources. Scientific research and evaluation show that air pollution is not confined to state boundaries. The southern states are experiencing unprecedented population and economic growth, as well as associated increases in energy and vehicle use, which have contributed to increased air pollution. To ensure clean air and a reliable, affordable energy supply, we must develop new strategies to address issues such as regional haze, ozone, fine particulate matter, acid deposition, and mercury that threaten public health and the environment.

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II. Recent Developments

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III. Multi-pollutant Strategy Recommendations

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The Southern Air Principles states recommend a multi-pollutant strategy that:

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The reductions of sulfur dioxide, nitrogen oxides and mercury would provide improvements in public health and in regional air quality areas of concern, such as areas affected in a significant adverse way by deposition, visibility, ozone and fine particulate matter.

B. Reductions from other source categories should also be considered in state and national legislation and regulations.

The Southern Air Principles states recognize that sources other than electric power utilities contribute to the sulfur dioxide, nitrogen oxide and mercury emission inventories. As such, they

agree to work cooperatively to improve their understanding of the emission sources and to develop strategies for effective emission reductions from appropriate source categories.

C. Recognize the value and importance of all Class I areas and work cooperatively to assure SAMI recommendations are implemented.

The Southern Air Principles states recognize the value and importance of our Class I areas and agree to cooperatively work together with groups such as VISTAS and other appropriate stakeholders in the implementation of SAMI recommendations. The Southern Air Principles states recommend that we assist in the improvement of the understanding of the sources of ammonia, and the development of better inventories and strategies for effective ammonia control approaches. Southern Air Principles states also recommend that SAMI make available to the various Regional Haze Planning Organizations (RPOs) the geographic sensitivity modeling results that show that states within those RPOs collectively impact visibility in the SAMI Class I areas. Furthermore, the level of communication and cooperation between Southern Air Principles states and the federal land managers for our Class I areas has been greatly improved and enhanced as a result of SAMI efforts. This improved relationship has helped provide greater consideration of federal land manager concerns and provided more certainty in air quality permitting. We recommend that we continue to build on and improve this relationship.

D. Continue to consult, consider and develop strategies as necessary to successfully implement these recommendations.

In order to accomplish the above recommendations, we recommend that the chief environmental officers of the Southern Air Principles states should continue their collaborative efforts and encourage other states' participation in these efforts toward the development of emissions reduction strategies.

E. Provide periodic reports to the Governors.

The chief environmental officers of the Southern Air Principles states will provide periodic reports regarding progress to their Governors and appropriate staff. Such reports are envisioned to be presented on an individual state basis, as well as by way of future Air Quality Summits.

Southern Air Principles
Transportation Report

The policy recommendations of the Transportation Work Group have been developed cooperatively with input from state transportation, energy and air quality agencies and in consultation with the U.S. Environmental Protection Agency and the U.S. Department of Energy. In the spirit of the Southern Air Principles, the work group developed these policy options not only with a regional focus, but also with consideration to the needs of the individual states.

Air emissions from transportation sources contribute significantly to air quality impairments in the Southern Appalachian Mountains as well as across the Southeast. Mobile source contributions will continue to increase without proactive steps to reduce these emissions. The policy recommendations in this report offer both short-term and long-term options to address mobile source emissions across the four states and in the Southern Appalachian Mountains.

I. Nature of the Issue

The strength of the southeastern economy is in part due to the strength of its transportation system, using highway, rail, aviation and maritime modes to efficiently transport people and goods to destinations within and outside the region. While this transportation system provides a wide range of benefits, it also impacts our natural resources and human health. For roads and highways, this includes land use impacts from road construction and use, as well as air pollution from motor vehicle use.

Motor vehicle emissions of concern include nitrogen oxides (NO_x), volatile organic compounds (VOC) and fine particulate matter ($PM_{2.5}$). Emissions of NO_x and VOC contribute to the formation of fine particulate matter and ground-level ozone, both major components of urban smog and regional haze. In 1997, transportation sources contributed 31 percent of all VOC emissions, 36 percent of all NO_x emissions and 4 percent of all $PM_{2.5}$ emissions in the nation. Motor vehicle use contributed 87 percent, 83 percent and 67 percent of these transportation-related VOC, NO_x and $PM_{2.5}$ emissions, respectively.

According to projections made by the Southern Appalachian Mountains Initiative (SAMI), NO_x emissions in the Southeast are expected to decrease by 2010, primarily in response to federal regulations that reduce emissions from utilities and highway vehicles. However, advances in reducing NO_x emissions will be offset in the years beyond 2010 by growth in vehicle miles traveled. SAMI estimates that vehicle miles traveled will increase 267 percent between 1990 and 2040. Further, SAMI projects that VOC and fine particulate emissions will continue to increase over the next 40 years.

In response to air quality concerns in the region, the governors of Georgia, North Carolina, South Carolina and Tennessee charged their respective chief environmental officers to address regional air quality problems with approaches that consider each state's unique qualities and needs. In response to this charge, the transportation, energy and environmental representatives of these states have considered a number of potential motor vehicle emissions, congestion and energy demand policies and projects to address transportation-related air quality impacts. The recommendations in this report present policies and projects that will result in reduced vehicle emission rates, more efficient travel and, subsequently, decreased motor vehicle emissions and improved air quality in the region.

II. Recent Developments

The September 2001 **Southern Governors' Association and the Southern States Energy Board** report, "Energy Policy in the South," identifies several key principles that are also important transportation policy issues. The report points out that while petroleum supplies 40 percent of the nation's primary energy needs, the transportation sector accounts for 67 percent of oil use (United States Energy Association, February 2001). Further, the transportation sector is expected to see the greatest growth in demand, offsetting fuel efficiency gains. To provide effective alternatives to conventional transportation fuels, the report encourages greater use of renewable resources. The report identifies the following transportation-related policy options: implement federal and state vehicle fleet programs that require the use of alternative fuels to support a refueling infrastructure; promote the use of alternative fuels and hybrid vehicles and the development of an infrastructure to supply alternative fuels; develop programs and policies that will foster a regional market in the southern states for biofuels and bioenergy; and encourage participation in the U.S. DOE Clean Cities program to achieve energy, environmental and economic development goals.

The **National Energy Policy Development (NEPD) Group** report, published May 2001, makes three recommendations relevant to air quality and mobile source emissions. The NEPD Group encourages the development of national legislation that would provide a temporary income tax credit for the purchase of new hybrid or fuel-cell vehicles; recommends that the federal government study opportunities to maintain or improve the environmental benefits of state and local "boutique" clean fuel programs while exploring ways to increase the flexibility of the fuels distribution infrastructure; and recommends the use of technological advances to better protect our environment, including development of Intelligent Transportation Systems (ITS) to reduce fuel associated with travel, and further demonstration of the U.S. DOT fuel cell powered transit bus program and the Clean Buses program.

Georgia State Implementation Plan—On July 17, 2001, the Georgia Environmental Protection Division (EPD) completed a revision to its state implementation plan (SIP) that

demonstrates attainment of the one-hour ozone national ambient air quality standard in Atlanta in 2004. The EPD has committed to implement a number of control measures that reduce emissions from motor vehicles, as well as from utilities and large industrial sources. Motor vehicle control measures include a clean-fueled fleets program that requires the purchase of low-emission vehicles by private and public sector fleets; cleaner low-sulfur gasoline to improve the operation of emissions control equipment on all gasoline-powered vehicles; an in-use control program that requires the repair of all gasoline-powered light-duty vehicles that fail an emissions inspection; and a broad, voluntary transportation demand management initiative that reduces single-occupancy vehicle travel and consequently vehicle trips and vehicle miles traveled. While this SIP is targeted at reducing emissions in the metro Atlanta area, it will contribute to air quality improvement throughout the region and can serve as a model for control measures that could be implemented elsewhere in the region to further improve air quality.

Georgia Tax Law Amendments—Amendments to Georgia's tax law in 2001 allow a tax credit to citizens for the purchase or lease of new alternative-fuel vehicles registered in the state. The amendments allow a tax credit of $2,500 per new low-emission vehicle and $5,000 per new zero-emission vehicle, as well as a $2,500 credit for each conventionally fueled vehicle that is converted to a low-emission or zero-emission vehicle. Additionally, a $2,500 tax credit is allowed to businesses for purchase or lease of each electric vehicle charger located in the state.

Tennessee Governor's Executive Order 27, issued July 2001, charged an Interagency Energy Policy Work Group with making recommendations on a number of energy and transportation issues that have air quality impacts. The work group's recommendations include: encourage telecommuting opportunities for state employees; assess and apply alternative work schedules, teleconferencing and other work methods to save time, reduce travel costs and increase productivity; expand carpool and vanpool options and offer pre-tax flexible benefit for state employees who use public transit or vanpools in commuting; participate in federal vehicle efficiency efforts by implementing pilot programs that test and demonstrate new technologies; provide an alternative fuel facility in the Nashville area; and develop Clean Air Partnerships in major metropolitan areas to offer more transportation choices, enhance mobility and improve air quality.

East Tennessee Transportation Studies—According to the National Park Service, the Great Smoky Mountains National Park is the most heavily visited national park. In fact, park visitation has increased 67 percent in the past 30 years, with more than 10 million visits during 2000. Historically, the growth rate experienced by the park's gateway communities has paralleled the visitation growth rate at the park. Regional transportation planning is essential in addressing impacts on air quality from motor vehicle emissions in the region.

Two East Tennessee transportation planning studies are nearing completion and two more were initiated in 2002. The Electric Transit Vehicle Institute (ETVI), Chattanooga, Tennessee,

conducted a study to identify alternative fuels that best serve the needs of Sevier County and the Great Smoky Mountains National Park. Based on study recommendations, ETVI will conduct an alternative fuel demonstration project during the week of June 21–30, 2002. The demonstration will include hybrid-electric/propane, hybrid-electric/diesel, CNG, fuel cell and electric transit vehicles (9-12 vehicles total). As planned, existing fleet vehicles will use ultra low-sulfur and biodiesel fuels during the demonstration period. Alternative fuel vehicles will run on existing transit routes within the gateway communities of Pigeon Forge and Gatlinburg. In addition, two new routes will be tested and one existing route will be extended to provide enhanced service to area residents and visitors.

The Regional Transportation Alternatives Plan (RTAP) for East Tennessee identified several regional travel corridors that have the potential to support alternative modes of transportation. The top priority identified in the study is development of Bus Rapid Transit (BRT) along the Highway 66/U.S. 441 corridor (I-40 to Gatlinburg) in Sevier County, which could provide transit service right to the doorstep of Great Smoky Mountains National Park. Taking the regional recommendation to the next level, the Sevier County Transportation Board is commissioning a preliminary feasibility study that will provide the needed data to decide whether or not to move forward in the federal New Starts program.

A final task of RTAP, the Cades Cove Technology Assessment, looked at visitor transportation systems currently operating in other national parks to determine if these offered solutions for the cove. The study also examined a range of transit technologies to identify those most promising for use in the cove.

Partnering with the Knoxville Regional Transportation Planning Organization, the Park has initiated the Cades Cove Development Concept and Transportation Management Plan that will continue where the Cades Cove Technology Assessment left off. The study, which began in January 2002, will provide a long-range approach for managing the cove's natural and cultural resources and improving the quality of visitor experience by providing for greater visitor mobility through a variety of transportation initiatives.

The park has just announced its partnership with the National Park Foundation, Knoxville Regional Transportation Planning Organization and the gateway communities in Blount County to complete the Gateway Communities Transportation Plan. Transportation management initiatives developed for Cades Cove will most heavily impact these gateway communities. This planning process will provide a means for public participation in developing transportation alternatives that relieve traffic congestion, while enhancing visitor experience and resource protection in the Townsend-Tuckaleechee Cove area in Blount County.

The Tennessee Valley Authority and the Great Smoky Mountains National Park are partnering to identify and demonstrate new technologies that will help reduce air pollution in the park. Cades Cove maintenance district staff is participating in an electric vehicle demonstration

project that will track the use and energy economy of several electric vehicle technologies, ranging from electric bikes to four-seat club cars, over a period of 18 months to two years. This experimental project seeks to determine vehicle effectiveness, research energy consumption and emissions/fuel alternatives, and evaluate noise pollution. This project will also help to promote new technologies that can lead to more efficient uses of energy and a cleaner environment.

South Carolina Governor's Executive Order 2001-35—This executive order, issued October 2001, addresses the provisions of the National Energy Policy Act of 1992 regarding the need for increased availability of indigenously produced alternative fuels, such as ethanol and biodiesel. The order strongly supports the efforts of South Carolina's Clean Cities coalitions and private business to increase the use of alternative fuels in South Carolina and requires all state agencies operating alternative fuel vehicles to use alternative fuels whenever practical and economically feasible.

North Carolina Governor's Clean Air Plan—During the 1999-2000 legislative sessions, the North Carolina General Assembly approved the Governor's Clean Air Plan (GCAP). The goal of GCAP is to reduce projected NO_X emissions in North Carolina by 25 percent from projected levels by 2010. The GCAP includes emission reduction strategies for all sectors of the economy. The strategies posited for the transportation sector include early introduction of low-sulfur gasoline; expanding the motor vehicle inspection and maintenance program from seven counties in 1999 to 48 counties in 2006 and changing emission testing from the traditional tailpipe test to the on-board diagnostic test; requiring that 75 percent of new state government light-duty vehicles be alternative fuel vehicles or low-emission vehicles beginning January 1, 2004; developing a plan under which 50 percent of new or replacement school buses use alternative fuels; developing a plan under which 50 percent of new or replacement municipal buses use alternative fuels; proposing incentives for the purchase and use of alternative fuel vehicles by private employers; developing a plan to reduce the growth of vehicle miles traveled associated with commuting by 25 percent by 2010; and developing a plan to encourage the use of telecommuting by public and private employers.

III. Alternative Fuels and Vehicle Technologies

Broad availability and use of cleaner vehicles and cleaner fuels are essential components to a southeastern strategy to reduce mobile source air emissions and offset national reliance on imported oil. Because an alternative fuels policy for the Southeast will provide air quality and energy benefits, the transportation, energy and air quality representatives have worked together to formulate the following recommendations for the governors' consideration.

Recommendations:

Increase the availability and use of cleaner fuels in the Southeast.

Implementing this goal will require that the states adopt policies that address the availability of alternative fuels, availability of vehicles, and fuel distribution infrastructure. In pursuit of this goal, the work group recommends the following policy options:

- Develop a southeastern regional network of alternative fuel stations along interstates and major highway corridors. In cooperation with the U.S. Department of Energy (DOE) Clean Cities program, the states should conduct a feasibility study to select initial corridors and identify potential markets and fuel types.
- Develop a broad-based regional consortium to encourage the availability and promote the use of clean and alternative fuel vehicles in the Southeast. Such a regional consortium should include state, federal and local government agencies; fuel producers, suppliers and retailers; vehicle manufacturers and dealers; public and private fleet managers, and others.
- Hold an annual Southeastern Alternative Fuels and Technology Forum beginning in the fall of 2002. The initial forum will seek to—
  - Identify critical needs and near-term actions necessary to significantly increase the availability and use of clean and alternative fuels and vehicles in the Southeast.
  - Develop a consensus between government and the private sector on interstate goals for improving and enhancing alternative fuels infrastructure.
  - Identify organizations and interests that are truly committed to building alternative fuels infrastructure and willing to contribute in a meaningful way.

  Through the forum, the states will identify opportunities and barriers to providing clean alternative fuels and vehicles in the Southeast. This annual forum will also showcase evolving technologies, encourage and plan the development of new cooperative efforts, and support ongoing programs. (See attached proposal for more details.)
- Collaborate with local governments, businesses and the U.S. Department of Energy to establish and operate additional Clean Cities programs in the Southeast. The annual Southeastern Alternative Fuels and Technology Forum will support this effort.
- Provide adequate fueling infrastructure for alternative fuel capable vehicles in state fleets in accordance with the spirit of the Energy Policy Act of 1992 and, if appropriate, to make this infrastructure available to local and federal government fleet vehicles.
- Place priority, where feasible, on purchasing alternative fuel vehicles certified to meet low-emission vehicle (LEV), ultra low-emission vehicle (ULEV) or zero-emission vehicle (ZEV) standards and challenge local governments and businesses to match this commitment.

- Identify and facilitate support for the advancement of clean alternative fuels and for vehicle and infrastructure technologies.
- Pursue incentives to promote the availability and use of clean and alternative vehicles, such as tax credits, rebates, and grants and loans for suppliers and users of alternative fuel vehicles and supporting infrastructure.

There are a number of reasons that the southeastern states should encourage the purchase and use of cleaner vehicles and cleaner fuels, such as improved air quality, reduced dependence on imported oil, and increased use of renewable resources for fuel production. Achieving this goal, however, will be a complex task with many barriers to overcome. There are also economic and policy implications that must be considered based on each state's needs and circumstances. Therefore, it is important that the states maintain flexibility in choosing options to fit their unique needs.

In deliberating the policy recommendations outlined in this report, the work group considered availability, benefits and disadvantages of the clean and alternative fuels and vehicles marketed and used in the four states. The work group also considered the substantial costs of developing refueling infrastructure and a delivery network.

Fuel availability and cost must be addressed in any effort to implement a regional alternative fuels initiative. Additionally, each fuel has its own special advantages and disadvantages, and the air quality benefits of the different alternative fuels vary considerably. Transportation application of the various vehicle types in fleet operations will dictate the fuel advantages and disadvantages.

Other significant challenges in advancing the use of alternative fuels include the relatively small number of alternative fuel vehicles currently in use and barriers to broader use of alternative fuels by average citizens. Some of those barriers are the same as those faced by fleet managers, for example, cost and convenience of refueling, higher purchasing cost of alternative fuel vehicles, and potential vehicle operational issues. These issues must be addressed in order to realize the full potential of the recommendations included in this report.

Currently, there are renewable energy options to fuel many of the currently marketed vehicles, and other fuels and vehicles are being developed. Two renewable resources that have great potential for use in the South are ethanol and biodiesel. There is also a growing demand for clean fuels, such as propane and compressed natural gas, especially in urban areas where attaining or maintaining the national ambient air quality standard for ozone is a concern.

The work group's recommendations focus first on public and private fleets, as existing alternative fuel programs in the four states have concentrated on government and private sector fleets where fuel infrastructure can be centralized and fleet managers have a large degree of control over how the vehicles are used and refueled. Using alternative fuels in fleets is a good way to begin because of the practical experience gained with alternative fuels, the growing public visibility of

alternative fuel fleet vehicles, and the increased demand for alternative fuel supplies and infrastructure.

Achieving the goal of increased availability and use of clean and alternative fuels and vehicles will require a concerted, ongoing effort by the states. The states should continue to seek sources of funding (federal, state and private sector) for the necessary studies, planning and development of an infrastructure network that will meet the needs of the four states. Additionally, the states must help public fuel providers understand the advantages and benefits of providing multi-fuel stations and offer incentives that encourage providers and suppliers to invest in infrastructure for multi-fuel stations.

IV. Regional Transportation Initiatives

Recommendations:

Develop regional alternatives to automobile travel to address the growing trend in vehicle miles traveled and to provide desirable and efficient alternatives to motor vehicle and air transportation.

- The states should work cooperatively to seek support and funding for an integrated regional transportation system initiative, including an integrated intercity rail plan to connect major cities with other than highways.
- To reduce air pollution in Great Smoky Mountains National Park, the states should support alternative transportation projects to relieve congestion and reduce vehicle emissions inside the park, as well as on major routes used to access the park.
- The states should develop a regional transit partnership that will explore options for an integrated regional transportation system (e.g., ITS, smart card technology, information clearinghouse) that unites transportation systems and tour operations near the park.

A long-term plan for reducing vehicle miles traveled and associated mobile source emissions must include convenient, accessible and affordable mass transit alternatives on the local level as well as from a regional approach. A comprehensive plan for managing growth in vehicle travel also requires that states and municipalities adopt policies that encourage quality growth in our cities and outlying communities. Quality growth provides more compact development, which is necessary to support public transit and to reduce the need for vehicle travel to schools, shopping and recreational activities. For the purposes of this report, however, the work group recommendations center on regional transit issues.

The cost of infrastructure continues to be a major barrier to the development of regional transit systems in the Southeast. The work group recognizes that the states must first work with federal, state and local government agencies and related organizations to determine the feasibility of developing an integrated regional transportation system initiative that will help reduce the

environmental impacts of vehicle travel and provide clean transportation alternatives. Studies will be needed to determine which corridors are the best potential candidates for development of regional transit systems, what type of transit systems are most appropriate for each corridor, and how to best link local transit systems with regional systems. Such an effort would require time and resources to ensure that transportation needs and air quality concerns are being addressed.

Additionally, efforts must continue to relieve congestion and reduce vehicle emissions inside the national park. The work group recommends that the states determine the feasibility of developing a Regional Transit Partnership in the Smokies area that would include a network of (at least) the states, local governments, the park, private tour operators, and the hospitality industry. It would be the responsibility of this partnership to seek support and funding for feasibility studies and infrastructure development. This endeavor would require a concerted effort by the National Park Service, local and state governments, and other partners to ensure that environmental concerns are addressed and that park visitors continue to enjoy a positive visitor experience.

V. Heavy-Duty Vehicle and Equipment Initiatives

Recommendation:

Where feasible, the states should implement strategies to reduce pollution from state-owned and/or operated heavy-duty vehicles and equipment.

The states should consider strategies such as emissions control retrofits (e.g., particle traps, selective catalytic reduction, oxidation catalysts), fuels (e.g., low-sulfur diesel fuel, water-diesel fuel emulsion), accelerated vehicle replacement, repowering (e.g., replacing a diesel engine with a compressed natural gas or electric engine), changes in operating characteristics (e.g., idling restrictions), and engine reprogramming. The states should also challenge local governments, transit operators and businesses to match this commitment.

The purpose of this proposed policy is to help reduce $PM_{2.5}$ emissions, and ozone and $PM_{2.5}$ precursor emissions from existing heavy-duty vehicles and equipment. Heavy-duty vehicles and equipment, including highway and non-road applications, emit significant amounts of fine particulate matter ($PM_{2.5}$) and the precursors that lead to ground-level ozone and $PM_{2.5}$ formation in the Southeast. Although new, more stringent federal emissions standards will be phased in beginning in 2004, heavy-duty engines typically have long service lives and, as a result, the current fleet of dirtier heavy-duty vehicles and equipment will likely be polluting for many more years to come.

Due to the federal preemption regarding the regulation of vehicle and equipment emissions, the states would have to find creative ways to implement this policy. One way to implement this policy is by retrofitting, where feasible, vehicles and equipment owned by the states with devices

and/or fuels that reduce emissions. Another way to implement this policy is to require contractors that are working on state-financed jobs (e.g., road construction) to retrofit a specified fraction of their vehicles and equipment with devices that will reduce emissions by a specified amount. (The policy must be designed to create a level playing field such that all contractors bidding on state projects would be subject to the same requirements.) An added benefit to this strategy is that, in many cases, the retrofit devices remain with the vehicles and equipment after the job is completed, and emissions reductions continue to accrue.

There are several potential barriers to implementing strategies to reduce heavy-duty vehicle and equipment emissions. First, most of the strategies require investment in the retrofit device(s) and potentially for support infrastructure (e.g., fueling facilities), and the retrofits can result in increased operating and maintenance costs. Yet, the emissions reductions potential from these sources has remained largely untapped, so these strategies could nevertheless be among the most cost-effective available. Key elements of this policy would be to 1) determine where retrofit initiatives would be feasible through a cost-benefit analysis, and 2) identify potential funding sources to support the initiative.

Second, EPA has developed a process to verify the emissions reduction performance of retrofit technologies in specific applications. However, there currently is no verified retrofit technology to reduce NOx emissions, which would likely be a main focus of the four states. The verification process is important to ensure that the retrofit device(s) will achieve the emissions reductions anticipated. This is particularly important if the states desire to take credit for the strategy in their State Implementation Plans (SIP). This policy could provide an incentive for manufacturers to verify technologies that would fulfill the specific needs of the four states.

Third, retrofit devices, in some cases, may reduce fuel efficiency and/or peak power output. It would be important to work with the vehicle/equipment operators to properly match the retrofit devices to the application. In addition, vehicle and equipment owners may be concerned about the effect retrofit devices may have on engine warranties, so it would also be important to work with the engine manufacturers to address these concerns.

Fourth, many of the retrofit devices would require clean, low-sulfur diesel fuel. The availability of clean fuels to support these initiatives would have to be determined.

Finally, there would likely be a great deal of institutional inertia to overcome in implementing heavy-duty vehicle and equipment initiatives. To implement such an initiative consistently and effectively, there must be a clear understanding of the purpose of the policy. This would require extensive outreach to inform the affected vehicle and equipment owners and operators about the program's purpose and structure.

VI. Southeastern Alternative Fuels and Technology Task Force

Recommendation:

Appoint a Southeastern Alternative Fuels and Technology Task Force to coordinate regional alternative fuels initiatives. The task force would consist of state transportation, energy and air quality officials, and others as determined by the governors. Among its duties, the task force would:

- Plan and hold an annual Southeast Alternative Fuels and Technology Forum in partnership with the U.S. DOE Clean Cities program.
- Establish and work with the regional alternative fuels / technology consortium.
- Act as liaison between the regional consortium and state agencies/environmental chiefs/governors to ensure that state goals and needs are being addressed appropriately. The task force would also serve to communicate the limitations and liabilities of various technologies and fuels to state government.
- Work to lower the barriers to implementation and utilization of clean alternative fuels in the Southeast.
- Identify applicable laws, rules and policies that need to be changed or developed in order to promote a regional alternative fuels network.
- Work within their states to identify and support state fleet purchasing and vehicle use policies needed to promote the purchase and use of clean alternative fuels.

Developing an effective cooperative regional effort will require ongoing participation and responsibility from the state agencies involved. The task force would provide the necessary continuity and communication within and between the four states, other government agencies, and private sector partners.

Proposed Southeastern Alternative Fuels Workshop
Hosted by: Four Southeastern States and the U.S. Dept. of Energy / Clean Cities
Potential Date: October – November 2002
Location: Asheville, North Carolina

The states of Georgia, North Carolina, South Carolina and Tennessee, in conjunction with the U.S. Department of Energy, will host a Southeastern Alternative Fuels Workshop in Asheville, North Carolina, in the fall of 2002. The workshop will promote alternative fuels in the Southeast and lay the groundwork for an expanded forum in 2003. It is intended that this workshop become an annual Southeastern Alternative Fuels / Technology Forum that will showcase evolving technologies, encourage and plan the development of new cooperative efforts, and support ongoing programs.

The 2002 workshop will be arranged through the North Carolina Energy Office and its designated contractor, with input from the Southern Air Principles Transportation and Energy work groups and with support and grant assistance from the U.S. Department of Energy. Future conferences would become the responsibility of the Southeastern Alternative Fuels / Technology Task Force, which will consist of state transportation, energy and air quality officials. The task force will also be responsible for continuing work on alternative fuels issues between conferences, as proposed in Section VI of this report.

Purpose of Workshop

The primary thrust of the 2002 workshop will focus on creation of a broad-based regional consortium to promote alternative fuels in the Southeast. The consortium will begin to plan expansion of alternative fuels infrastructure and fleets, including the construction of fueling facilities along highway corridors in the region and the formation and support of Clean Cities programs. The workshop will assist the states in identifying critical needs and near-term actions necessary to significantly increase the availability and use of alternative fuels and alternative fuel vehicles in the Southeast in order to improve air quality and lessen dependence on foreign oil.

Key forum goals are to—

- Develop a consensus between government and the private sector on interstate goals for improving and enhancing alternative fuels infrastructure.
- Identify those organizations and interests that are truly committed to building alternative fuels infrastructure and willing to contribute in a meaningful way.
- Identify strategies and cooperative actions, including incentives, to increase availability and use of alternative fuels and alternative fuel vehicles, and hybrid vehicles.
- Identify solutions, including possible legislative actions, needed to overcome barriers to (a) fleet use of alternative fuels, (b) acquisition and use of alternative fuel vehicles, and (c) establishment of publicly accessible multiple-fuel outlets (e.g., Aiken, SC).
- Identify those organizations and interests that are truly committed to building and supporting Clean Cities programs.

Future forums will also provide opportunities to—

- Showcase alternative fuel vehicle technologies and current car and truck models available.
- Serve as the annual Southeastern gathering of DOE Clean Cities programs.
- Offer existing Clean Cities programs an opportunity to highlight accomplishments and provide start-up advice to communities that are trying to organize Clean City efforts.
- Provide opportunities for fledgling Clean City coalitions to discuss their status and the challenges they face with persons and organizations that may be able to provide assistance and helpful information.
- Offer opportunities for interested cities to learn how to become designated as a Clean City.
- Provide an opportunity to educate the public about alternative fuels and alternative fueled vehicles through an alternative fuel vehicle exhibition to include LEVs, ULEVs, ZEVs, clean buses, fuels and fuel additives.

Proposed Agenda

The 2002 workshop would consist of facilitated discussions focusing on increasing the availability of alternative fuels and vehicles and developing corridor infrastructure. Potential workshop discussions would—

- Address the need for establishing alternative fuels infrastructure and alternative fuels networks.
- Discuss interstate goals for corridor infrastructure development and describe the characteristics of desirable locations for such facilities.
- Discuss the effectiveness and potential of diesel conversion and re-powering programs.
- Provide opportunities for government agencies, fleet managers, transit agencies, etc., to discuss partnership opportunities with vehicle manufacturers and dealers, retrofit manufacturers, fuel producers, wholesalers and retailers. This will include heavy-duty diesel engines (buses and trucks).
- Present case studies of existing programs (successes, barriers, etc.)

Other topics for potential discussions should also include—

- Air quality concerns and impacts of vehicle emissions on air quality and public health (including heavy-duty diesel and gasoline engines)
- Information directed to specific audiences. For example, information targeted to fleet managers could include vehicle and fuel choices; retrofits; information on incorporating AFVs into their fleet; and answers to the question “what’s in it for me?” Information targeted to fuel producers, wholesalers, retailers could focus on success stories and why leading stations and companies were willing to be “first.”

Intended Audience

The workshop would begin to identify those individuals/groups/organizations most likely to be involved in beginning a regional consortium. Future forums should be expanded to attract some 120-150 stakeholders from the region and across the nation. Forum participant should include—

- Clean Cities program officials
- Fleet managers
- Alternative fuel vehicle manufacturers and dealers
- Fuel retailers/truck stops
- Fuel producers and wholesalers
- State petroleum marketing associations
- Diesel conversion or re-powering manufacturers
- Environmental agencies/air quality professionals
- Energy officials
- National energy laboratories
- Transportation officials
- Local governments
- National Park Service/GSMNP
- Interstate transit agencies
- Environmental advocacy organizations
- Agricultural organizations
- Public health organizations
- Clean bus manufacturers
- Metropolitan planning organizations
- Local transit agencies (public and private)

Conference Funding

The U.S. Department of Energy, Atlanta Regional Office, is working with the states to secure a $14,000 grant to assist with the 2002 workshop. Additionally, a nominal registration fee may be charged if necessary. Future forums could be funded potentially by:

- DOE grant funds
- EPA grant funds
- Corporate sponsors
- Financial and in-kind contributions from state agencies and major university(ies)
- A nominal registration fee

Southern Air Principles
Energy Report

Energy production and consumption clearly have significant environmental and economic impacts on the Southeast. According to projections by the Southern Appalachian Mountains Initiative (SAMI), the Southeast could see a 50 percent increase in electricity generation by the year 2010 as compared to 1990 levels. In comparison, SAMI projects southeastern population growth will be approximately 25 percent during that same time period. These projections assume that growth will continue at the same rate as in the past decade and that no concerted conservation efforts are implemented. As the southeastern states continue to grow, it is incumbent upon state and federal government leaders to take steps to curb per capita energy consumption and to seek means to further reduce associated air quality impacts.

As charged by the Southern Air Principles agreement, the Energy Work Group has considered policy options that address air quality issues through energy programs. The work group submits the following energy policy options to address both air quality concerns and energy consumption growth trends in the Southeast.

I. Green Power

Recommendation:

Develop a strong green power network in the Southeast. To promote the development and increased use of green power, the states should—

- Pursue financial incentives that encourage growth and investment in green power technologies.
- Encourage investor-owned, public and rural electric cooperative utilities to offer green power pricing programs.
- Consider means to purchase green power for state-owned and operated buildings.
- Promote commercial and residential use of green power, where available, including incentives for consumer use.
- Partner with the Atlanta Regional Office of the U.S. Department of Energy in cooperative green power initiatives. Annual Southeast green power summits should be held to review current issues in developing green power sources and to support further coordination of projects in the Southeastern states.

As a component of utility incentives and also for private generation, tax credits and regulatory simplification will increase the propensity to develop green power projects. Green power incentives throughout the states, such as North Carolina's 35 percent tax credit for green power

generators, will encourage economic development, especially for businesses looking to promote their technologies throughout the region.

The states should strongly encourage their investor-owned, public and rural electric cooperative utilities to offer green pricing programs or tariffs to their customers. Such programs should be offered to all customers, including commercial, institutional and industrial customers. In some states, it may be appropriate for utilities to form a consortium whereby one green power rate is offered to all customers and a statewide green power education program is conducted on behalf of all participating utilities. This latter case, now being pursued in North Carolina, offers the potential for higher visibility and greater participation by consumers in green power programs.

Green pricing plans allow utilities to defray the costs of green power technologies. An August 2001 report issued by the National Renewable Energy Laboratory explores different pricing programs and their successes throughout the United States. The Tennessee Valley Authority (TVA) uses a form of green power pricing that allows customers to choose a specific amount of their power to come from green power sources, such as landfill methane, wind and local solar projects. Santee Cooper, the state-owned utility operating in South Carolina, recently opened a landfill methane generator, and customers will have the option of paying a premium price of $.03 per kilowatt-hour to fund the development of additional renewable source installations.

The states should seek opportunities to set a positive example by promoting green power use in state-owned and operated buildings. Tennessee has recently enrolled all Nashville state buildings in TVA's Green Power Switch program.

In order to promote and encourage green power projects, incentives must also be offered to end-use customers, for example, state or utility loan programs, rebates, tax credits and zoning ordinances designed to reduce financial barriers to green power. There must also be an extensive green power education program to provide technical information for industry professionals, as well as more general information to the public.

States should consider offering information and education programs regarding green power to raise awareness of the benefits of renewable energy technologies and sources. Such programs will bolster any existing green power programs being offered by utilities in the state, as well as encourage consumers to directly use green power technologies in their homes and businesses when cost effective.

To concentrate efforts and present a united and organized coalition, the southeastern states must agree on the renewable energy technologies that constitute green power. While large-scale hydroelectric power generation is technically a renewable source of energy, it is not necessarily "green." By agreeing to equivalent green power specifications, the states will be able to move forward in discussions and negotiations for a strong green power network in the southeast.

This year, the southeastern states are holding the first Southeast Green Power Summit in Raleigh, North Carolina. The summit will open the lines of communication among utilities, public agencies, green power marketers and developers with the goal of building strong working relationships. As the transmission of power is a regional concern, a regional approach to negotiating these projects is necessary. The Green Power Summit is the first step in coordinating regional efforts.

II. Energy Efficiency for Buildings and Industry

Recommendation:

Adopt the new International Energy Code and consider means to encourage compliance with energy-efficient construction standards, such as providing financial incentives to local governments responsible for codes implementation and enforcement.

Building energy codes serve not only to improve energy efficiency, but also to reduce energy demand. Energy-efficient buildings have lower energy costs, create less demand for fossil fuels, and reduce or prevent air emissions from new power generation. According to the Building Energy Codes Program, U.S. Department of Energy, strengthening energy codes increases the likelihood of energy and cost savings in new construction and renovations to existing buildings. New buildings can be designed to be both more comfortable and more efficient, cutting heating and cooling costs by close to 50 percent.

A vast amount of our energy use occurs in our buildings and industrial sectors, roughly equating to about two-thirds of our total energy consumption. In the industrial arena, surveys in North Carolina have shown that there are hundreds of millions of dollars that could be saved annually with energy efficiency measures that would average paybacks of three years or less. Much of these savings could be found in troubled industries, such as textiles and furniture, which desperately need to reduce their operating expenses in order to compete effectively in the global marketplace. The Energy Work Group calls upon each of the participating states to aggressively market their existing programs or establish new programs that assist industry in reducing its energy use and resulting air emissions through quality energy auditing, training and financial incentive programs.

Recommendation:

Place special emphasis on reducing energy expenditures in public education through energy audits, design and technical assistance, training for school officials and building designers, and adequate capital financing to secure the needed energy improvements for both new and renovated buildings. In both the construction of new facilities and the renovation of existing buildings, states should seek to reduce energy expenditures by at least 30 percent.

In the buildings sector, which constitutes about 36 percent of our energy usage, each of the participating states faces the prospect of spending many billions of dollars over the coming decade for new construction and renovation of public schools and community college and university buildings. These education buildings, where energy expenditures may exceed more than $2 billion for the four states, drain taxpayer resources for energy expenses that could be more wisely invested in faculty and teacher support, as well as other pressing educational needs.

Recommendation:

Institute a comprehensive and aggressive energy efficiency program for state facilities and universities that will yield a minimum reduction of 30 percent in energy expenditures. Alternative financing strategies, such as performance contracting and the issuance of bonds, should be seriously considered as a possible means of covering the capital expenses of this much needed endeavor.

Energy efficiency improvements in state facilities and related operations could yield substantial cost savings. Given the present budget difficulties in each of the four states, it is an ideal time to reduce energy expenses. Aggressive energy conservation programs would also place the governors in position to lead by example, demonstrating that states can and will take action to control their energy expenditures. Such leadership will give added credibility to other state energy programs that are reaching out to local schools and governments, business and industry, and the general public.

Today, state agencies and universities in the four states are estimated to spend in excess of $700 million annually on their energy bills. A comprehensive energy efficiency campaign in state facilities could reduce this amount by 30 percent or more. Alternative financing strategies, such as performance contracting and the issuance of state bonds, should be investigated to potentially provide a vehicle for raising the capital for such an effort during the present lean budget period. Energy efficiency measures implemented or in the process of being implemented in Tennessee state facilities are projected to save $5.1 million annually. Approximately 80 percent of state-owned space is currently committed to partnership agreements, and Tennessee's new energy policy now requires all state agencies to participate in the state's Energy Action Plan.

III. Industries of the Future (IOF) Program for Improving Regional Air

Recommendation:

Expand, broaden and enhance existing state energy efficiency programs for industry to result in significant reductions in air pollutants and costs savings to industry that is increasingly struggling to compete in a global marketplace. States should partner with the U.S. Department of Energy, as in the recent case of Tennessee and North Carolina, to formally establish Industries of the Future programs that seek increased efficiencies

and process improvements in selected energy-intensive industries. The IOF program holds great promise for major reductions in energy use and air emissions in the targeted industries.

Industrial energy use by manufacturers located in the four states of this regional air agreement represents a significant opportunity for energy efficiency improvements and, consequently, reduced air emissions. As illustrated in the table below, the total industrial energy consumption in the states of Georgia, North Carolina, Tennessee and South Carolina is estimated at three quads per year.

National Ranking and Industrial Energy Use Of Four Southern Appalachian Mountain States (1997-1999 data in trillion Btu's)		
Georgia	12th	840 trillion Btu
North Carolina	13th	792 trillion Btu
Tennessee	16th	710.8 trillion Btu
South Carolina	18th	662 trillion Btu

Supporting Data Source: U. S. Department of Commerce-Selected NAICS Codes-Economic Census 1997 Annual Survey of Manufacturers 1998.

Expanding and enhancing existing state and federal energy efficiency programs for industry can achieve large reductions in both energy use and air emissions for the region. One existing program capable of providing the elements for achieving these reductions is the U.S. DOE Industries of the Future (IOF) program. The program seeks a 25 percent improvement in energy efficiency and a 30 percent reduction in air emissions for the selected energy-intensive industries by 2010, and a 35 percent improvement in energy efficiency and a 50 percent reduction in emissions for the selected industries by 2020. This program motivates and assists industry with developing technology solutions to critical energy and environmental challenges that will produce additional business and community benefits.

The U.S. DOE program was initiated to operate the IOF for nine basic manufacturing industries. Teams of industry leaders focused on these energy and waste-intensive industries: agriculture, aluminum, chemicals, forest products, glass, metal casting, mining, petroleum and steel. Most of these industrial groups are well represented in the four states and would be eligible participants.

The IOF program is active in several of the states and could be easily broadened. At a national level, the program established a vision document for each of the industry groups, outlining the goals for improving industrial competitiveness while maintaining sustainable growth. Then program teams prepared "technology roadmaps" for each of the industrial sectors. These roadmaps outline research and development of pre-competitive technologies capable of delivering the program

goals. Finally, the program establishes partnerships that pool the resources of industry, academia, and government to accelerate the pace of research and development in meeting industry's top needs and achieving national goals for energy and the environment.

Individual industries can begin the process by contacting one of the supporting Industrial Assessment Centers, located in North Carolina, Georgia, South Carolina and Tennessee. The centers will provide an in-depth assessment of a plant site, its facilities, services and manufacturing operations. A university-based Industrial Assessment Center team will conduct a survey of the eligible plant, followed by a one- or two-day site visit, taking engineering measurements as a basis for assessment recommendations. The team then performs a detailed analysis for specific recommendations with related estimates of costs, performance and payback times.

The state-level IOF programs integrated with the national program encourage further collaborative relationships among industry, universities, state and federal agencies, and national laboratories to design and demonstrate strategies and technologies that address the needs of local industries in the areas of environmental stewardship, energy and process efficiency.

Each state would focus on delivering the program to its own industrial mix of partners. The benefits of strengthening and expanding the IOF program include—

- An immediate opportunity for action through existing Industrial Assessment Centers or active programs that can be leveraged into quick action.
- An established successful methodology for partnerships and networks.
- Delivery of proven energy efficiency and emission reduction goals in each state's mix of industrial facilities and financial support through existing federal funding for the participating states.

States should consider adding industries to their IOF Programs that are especially important to the state's economy and very energy-intensive, but which are not currently covered by the federal IOF programs. Service to these industries, such as textiles or food processing, could help to retain industries in the region, preserve jobs and reduce industrial energy costs and air emissions. State funding should be located wherever possible to support these services to targeted, non-federal designated industries for inclusion in state IOF programs.

IV. Financing Energy Efficiency, Renewable Energy and Low-Income Needs

Recommendation:

Give strong consideration to developing and advocating state legislation that would create a public benefits fund to finance state energy efficiency, renewable energy and low-income energy programs.

Ensuring that our homes and businesses operate in the most efficient manner and that the region's extensive renewable resources are developed over the next decade to meet a large portion

of the region's anticipated energy growth requires a mechanism to finance these activities. The need for this financing mechanism has never been greater because the electric utilities in the region have been rapidly scaling back their energy efficiency, demand-side management, renewable energy and research and development programs. In North Carolina, as just one example, the state's three investor-owned utilities spent over $200 million per year on these activities in 1992. A decade later, spending has decreased to less than $90 million and is dropping fast. Our region's utilities see competition eventually coming forth and have scaled back any non-essential activities.

The net result of these actions—or inaction in some of the states—has been to take the reins off growth in electricity consumption in the region, sending our power needs and air emissions higher while fewer programs assist citizens and businesses in saving money by becoming more energy efficient. As a result, more funds leave the states' economies for other states and foreign countries since the region has few fossil fuel resources.

Meanwhile, the low-income citizens of this four-state region have found it increasingly difficult to meet their energy expenses, and fuel payment assistance funds have often been inadequate during harsh winters to meet these needs. One avenue for reducing these fuel expenses is by weatherizing low-income homes, but the waiting list for homes needing insulation and other measures is extensive.

To meet these energy needs and fill the gap created by the elimination of programs at utility service companies, the growing trend across the country has been to create a public benefits fund by placing a small charge on each electric utility customer. More than 20 states now have a public benefits fund in place, using a minimal charge of 1 to 3 mills per kilowatt-hour (i.e., 1 mill = .1 of 1 cent). Although this is a very small charge per customer, costing only a few dollars per year, it can generate substantial funds needed for energy efficiency and renewable energy investments, as well as low-income assistance. In North Carolina, for example, a one-mill charge would generate nearly $100 million annually. A good example is the state of Wisconsin, a state where utilities' generation is still regulated, but which established a public benefits fund approximately two years ago. The fund generates over $80 million annually for energy programs in Wisconsin.

Funds collected for a public benefits fund should be used primarily as direct incentives to energy users to employ energy efficiency and renewable energy measures in their homes, businesses, schools and local governments. Outreach and education is an essential ingredient to raising consumer awareness and helping them make sound, informed decisions about the purchase of these energy-related measures. A minority portion of the funds should also be used to educate consumers about the benefits of these technologies and to augment low-income fuel payments when funds from existing sources are exhausted.

V. Renewable Portfolio Standard

Recommendation:

Give strong consideration to developing and advocating for state legislation that would establish a renewable portfolio standard. The requirement of renewable resources, as part of the utilities' overall generation mix, should be set to correlate with the available renewable resource potential and existing resources that are being utilized.

The South's renewable energy resources are among its greatest assets. The region is blessed with the most abundant biomass energy resources in the nation (e.g., animal waste, wood waste, potential for energy crops and landfill gas). The southern region also possesses good solar and hydro resources and has extensive potential for wind energy in the Appalachian Mountains and along its coastline. Many of these resources are virtually environmentally benign, such as solar and wind power, and the remainder typically have far lower emissions and less environmental disruption than typical fossil fuel plants.

Perhaps the greatest advantage to development of the region's renewable resources, though, is the economic security that such development fosters. The development of these resources, located within the boundaries of our states, leads to less dependence on outside sources of fuel and generates in-state jobs and economic growth. In a region that is almost totally reliant on outside sources of energy, the development of renewable sources can provide a growing measure of protection against potential supply disruptions or price spikes. And, rather than sending all of our energy dollars outside our states, in-state renewable energy businesses keep those jobs and dollars working in our states' economies.

To accelerate the development of renewable resources, ten states in the nation have taken the lead and established a renewable portfolio standard (RPS). The RPS establishes a minimum percentage of renewable energy generation that is required, usually increasing gradually over a decade or more, to be provided by utility companies in the state. This percentage usually begins at a level near current renewable energy generation and then grows each year. In most states, trading of credits is allowed to enable smaller utilities or those having difficulty developing renewable resources to meet the requirement by buying credits from those who may have developed excess renewable capacity.

Texas has achieved great success with its renewable portfolio standard. Since enacting its requirement for approximately 2,900 megawatts of renewable energy by late in this decade, almost 2,000 megawatts have already been constructed and placed in service (primarily wind energy systems). Encouraging renewable energy resources through an RPS unleashed a torrent of development that has directly benefited both the Texas environment and economy.

VI. Interconnection Standards and Net Metering

Recommendation:

Give strong consideration to developing and advocating state legislation, such as that in the state of Georgia, which would allow for net metering and simplified interconnection standards for small renewable energy generators. Net metering laws encourage small-scale renewable generation and, thereby, increase the contribution of these resources to the state's energy mix. Alternatively, a state could also enact net metering rules through the appropriate regulatory authority.

The development of renewable and distributed resources across the South suffers from a lack of clear and streamlined standards that pave the way for easy interconnection of these resources to the utility grid. In many instances, roadblocks and barriers have been placed in front of small generators who wish to sell power. A small generator is usually defined as someone who has a generating capacity of less than 100 kilowatts. Most residential systems typically use less than 10 kilowatts, while farms and other small businesses may use 10-100 kilowatts in many instances. These barriers lead to an underutilization of these resources and discourage their development. Since many renewable resources are inherently decentralized, removing the barriers to interconnection is essential to tapping their full potential.

National safety standards for small solar electric systems have been developed and ratified in the National Electric Code, by Underwriter's Laboratories, and by the Institute of Electrical and Electronics Engineers (IEEE). Similar standards for small distributed generation systems are nearing finalization. The proper safety considerations are now accepted in most areas for the manufacture and installation of these systems.

Besides equipment considerations, however, many of the barriers relate to tariff and contractual requirements that are often unnecessarily burdensome for the small generator, if not outright discouraging. Exorbitant homeowner insurance requirements, complex and lengthy contracts, standby charges and rules requiring the installation of dual meters on a house or small business are examples of these barriers. To date, 36 states have solved this issue by passing legislation that allows for "net metering," or the exchange of power bought and sold by small generators at the utility company's retail rate. Such laws, now in place in Georgia and nearby Virginia in our region, require only a single meter on a household that runs forward or backward as energy is supplied to or purchased from the grid. Such laws also spell out simple interconnection standards and clarify the process for tying into the utility grid.