



Sowing Seeds of Knowledge

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Environmental Issue: AIR

The Garden Club of Georgia, Inc.

Mission: Beautification ... Conservation ... Education

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Theme for Martha Price GCG Administration 2015-2017:

Sowing Seeds of Knowledge Reaps Conservation with Beauty

Environmental Issue: AIR, a Necessity

[As sometimes happens, better ideas come to mind after the fact, often as soon as one hits SEND. To correct one such gaffe in the previous issue on Water, the Water Position Paper should have been included. Therefore, the first section of this issue will be the GCG Position Paper on AIR that states GCG goals for that topic. Please note that the Position Papers are all available on the GCG Website and in addition to being written by GCG members with input from experts in the eight areas the Papers cover, they were approved by the GCG Executive Board and the GCG Board of Directors. They are the goals we have to carry out the parts of our Mission. Moreover, they are intended to be reviewed by the Legislative Committee once during each GCG administration (in even numbered years) and to be revised if/as needed, and then approved by both Boards. The latest date of each revision or review is to be added to each Paper.]

GCG Position Paper 2003:

GCG Supports Clean Air

Reviewed 2014

The Garden Club of Georgia, Inc. has been dedicated to preserving and protecting Clean Air since 1928.

Over many days from May to October, the air over much of the state of Georgia is not clean enough for safe health. Rain transfers much of our air pollution to the waterways and earth. This acid rain is killing our forests, lakes, and waterways, and reducing crop yields. Wildlife habitats, as well as wildlife, are being reduced or are disappearing. Lakes still support fish, but EPD warns pregnant women to limit or avoid consumption of fish, due to high mercury content, which would impede proper development of the fetus.

Two main sources of air pollution in Georgia are: vehicles for transportation (cars, buses, and trucks, and especially diesel engines), and coal fired electric power plants operating without modern pollution controls.

GCG believes that the following action must be taken to improve the quality of Georgia's air if we are to maintain a vibrant and forward moving economy.

- Reduction of three pollutants—Sulfur dioxide (SO₂), Nitrogen oxide (NO_x) and Mercury (Hg)—that are affecting the quality of the air and adversely affecting the habitat of all living things: plants, animals, and humans.
- Reduction in the amount of Carbon dioxide (CO₂) and other greenhouse gases released to the atmosphere, as global warming may pose the greatest risk to biodiversity in the coming century.
- Emission reduction for these four pollutants through an integrated strategy of regulated emission caps, improved energy efficiency, and greater use of renewable energy sources.
- Enforcement of New Source Review, a key provision of the 1977 Amendment to the Clean Air Act, that requires old power plants to modernize their pollution controls whenever they expand or increase their emissions.

Glossary of Terms

Sulfur dioxide (SO₂)—Sulfur in coal becomes sulfur dioxide (SO₂) when coal is burned. SO₂ acidifies lakes, streams, and soil, and creates haze that pollutes our state's wilderness and urban areas.

Nitrogen oxide (NO_x)—Nitrogen oxide is produced when coal is burned. Winds carry these acid pollutants far from their sources. This causes acid rain, smog, and acid gases. Nitrogen oxides and hydrocarbons combine in the atmosphere to form ground level ozone, the major constituent of smog. Human exposure to smog can produce shortness of breath, asthma, and over time, permanent lung damage.

Mercury (Hg)—Mercury is a nerve poison that builds to hazardous levels when released into the environment. The chief source of mercury is power plants. When mercury enters the water, it can contaminate fish. Forty-one states have issued warnings regarding consumption of fish from their waters.

Carbon Dioxide (CO₂)—Carbon dioxide is the gas most responsible for global warming. Much of the emission of CO₂ into our atmosphere can be directly related to human activity. Examples are deforestation and the burning of fossil fuels.

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I. OVERVIEW: August is the month when Georgia summers bring multiple dog days of high air temperatures and equal or sometimes even higher - up to 99.99% - air humidity. As my daughter said appropriately as a young child one sultry summer day: the air is *thick*. As we reached the last days of a July blue moon, color coded air alerts of orange began appearing with regularity. August is also the month when a year's tropical storms with winds, high tides, and rain begin their meandering across sea and land, often alleviating summer droughts, but bringing along damage by winds and tides.

As members of a relatively large and widely respected conservation organization, GCG members show concern about air pollution because it very simply isn't healthy for breathing. In the form of acid rain, it pollutes lands and waters, including oceans, on which it also falls, negatively impacting much life. Children, especially prone to asthma from bad air quality, and the elderly - including many of our members - are susceptible to air pollution. Such pollution is a part of the causes of warming of air temperatures worldwide resulting in melting of polar ice and glaciers. Good, clean air with sufficient oxygen is a necessity for life for all of us and for animals. Sufficient oxygen in waters is also necessary for healthy marine life. Remember about the "bubblers" to be added to the Savannah harbor to add oxygen.

II. ENERGY SOURCES AND EFFECTS ON AIR

A. COAL: Experiment: Look online or in your color photos and postcards or films and videos at pictures from the 1960's of historic buildings in almost any metropolitan area and compare them to recent ones. As but one example, London's Houses of Parliament begun in 1839 that stretch along the Thames were almost black from soot by 1960's because of Industrial Revolution's use of coal. Now cleaned, those buildings are back to the golden color of the Yorkshire stone with which the "new" Parliament buildings were constructed. The comparison is amazing. Cleaning of black coal residue and dirt from many older and treasured buildings is being carried out in many places and countries. Coal residue produced poor air quality. Crowded living conditions in cities also made for unhealthy air that damaged lungs and enabled rapid spreading of tuberculosis. See the current issue of National Geographic for a story on cleaning the Taj Mahal.

Remember that coal, a natural resource, is not a feasibly renewable source of energy because it takes 300 million or more years to form.

We need to encourage and to insist on high air quality standards and to do whatever we can to keep our air breathable. No Smoking areas in buildings and on many public properties help. Such summertime pleasures as outdoor grilling, trips in motor vehicles and recreational motor boating devices during treasured summer vacations all add noxious chemicals to air.

Increased fuel efficiency, electric vehicles, and catalytic converters have helped improve air as have emissions requirements for vehicles.

High summer temperatures mean additional use of electricity for fans and air conditioning. It is a bit striking that Atlanta's rapid expansion after WWII was partly due to the availability of air conditioning for vehicles, homes, and buildings. You may be lucky enough to remember when movie theaters first started using large signs stating *Air Conditioned!* The ceiling of stars at the Fox Theater is likely a reference to ceilings in earlier theaters, especially in warm climates, that opened to allow some air. Many opera houses staged productions only in winter because the heat and air humidity levels of summer days would have made sitting inside them unbearable.

Much air pollution and smog are results of burning fossil fuels for energy to run cooling systems. Among the list of top distinctions for Georgia is that it has the most polluting coal fired power plant in the country. Retention ponds for water used for power plant cooling systems can leak the waters that have been made not swimmable, drinkable, or fishable by power plant use. Consequently, a needed growing trend is to seek alternative sources of energy.

B. WOOD AND WOOD CHIPS: Trees can be felled and turned into chips to be burned by power plants to produce energy. The catch there is that trees take in carbon dioxide, an air pollutant. Trees are a renewable natural resource, but when they are burned, the carbon dioxide they have sequestered is released into the air. Georgia currently exports wood chips made from Georgia grown trees to Europe to provide some of the power plants there with fuel.

C. NUCLEAR ENERGY: Nuclear power plants have their own inherent potential disasters. However, the level 9 earthquake and 2011 tsunami in Japan that followed and flooded the Fukushima nuclear plant caused a level seven nuclear meltdown with confirmed deaths of 15,891. Physical damages are currently estimated at 300 billion dollars. Polluted air and resulting damages leave 230,000 people still living in temporary housing, all according to Beta Live Science in May of this year. Radioactive water was recently discovered leaking at the plant, compounding the problem.

What's truly frightening is that the nuclear plant itself did not cause the tragedy. However, because all nuclear plants require tremendous amounts of water to operate, they also of necessity require locations with access to large amounts of water, either nearby or piped from other locations. As long

as there are no major weather related problems or accidents with the reactors and the plants that contain them, air is safe and nuclear energy is an alternative to carbon creating forms of energy.

The large nuclear plant currently under construction in this state is years behind in terms of completion and billions of dollars over budget in cost overruns. A valid question involves the reaching of a point of no return in completion of the plant. Georgians are responsible for absorbing much of the overrun costs. There is no easy answer or solution to that conundrum.

D. NATURAL GAS AND/OR OIL: Gas and oil are natural resources with unknown but limited amounts, not often located near power plants and as far as we now know, not renewable. Moving the needed amounts from fields or wells or ground involves transportation costs and inherent dangers in drilling and shipping dangers. Pipelines can burst and recent tragic events with train transporting of oil is a known risk. Offshore drilling is also a known factor with disastrous potential problems. Water used for hydraulic fracking becomes unsafe and chemicals used for the process can potentially invade underground aquifers.

E. WATER: Water power - think of Niagara Falls and water driven water wheels for mills that can be effective, but they cannot supply sufficient power for all the country's needs. Adding dams across waterways has negative effects on marine life and halts navigation.

F. SOLAR: Sun power is still considered an alternative form of energy as the world becomes warmer. Georgians have progressed from being told a truly incredible that there was not enough sun to produce solar power here to now being encouraged to buy or lease solar collection systems. **Georgia has rapidly gone from 26th in the country for solar capacity to sixth in only the past two years.** Solar farms are being developed statewide, including a Taylor County site as large as over eight hundred football fields. There are also solar arrays in Washington County as well as one near Athens. Solar farming is partly replacing row farming.

Problematic with solar energy, friendly to clean air, is the currently fuzzy legality of leasing the equipment and technology from companies or the currently legal purchasing panels outright and owning the system. Existing utility companies have opposed third party leases of technology and equipment. Initial cost of equipment that has decreased greatly in the past few years. Excess power is to be sold back to the grid. Big box stores with flat roofs are prime territory for solar panels.

Solar legislation is expected in Georgia in 2015. Be prepared.

G. WIND: For purposes herein, do consider wind as moving air. Just as Georgia is now developing solar farms, it and other states are moving into wind farming. We're in a new age, farming winds and sunshine, companion planting row crops and wind turbines. The cost for wind as a resource is nothing, but the turbines themselves are an investment. Many are 250 feet high, and newer ones soar up to 460 feet. In a neighboring state, a large wind farm with row farming beneath is under construction and is designated to provide power for Amazon.

Such construction is becoming more common. The new versions of windmills that were once familiar sights on farms to pump water and in the Netherlands to pump water and to grind grain and paints are now very tall and efficient - albeit very noisy - as they generate electricity. Try standing near one to experience nearly being blown over. Wind turbines offshore exist now and are being developed, planned, and installed in many places. But there is major question about their interference with navigation and marine life. Negative effects on land include hazards to resident and migrating birds and butterflies as potential disasters.

Like billboards, wind turbines are not often considered visual enhancements to landscapes. However, we have grown accustomed to seeing power and telephone poles, lines, and transformers.

Wind power is an efficient and desirable alternative power source - as long as it blows.

Remember that there is a grid for moving power nationwide and that power companies can send and sell electricity.

III. ENVIRONMENTAL PROTECTION AGENCY: It was created legally in 1970 after the first Earth Day. Its leader was then and is now a Presidential appointment.

It sets national standards for protecting the environment. Because of the diversity of geography and available resources, states can create individual action plans and rules to achieve the national goals.

IV. IMPORTANT: Approaches to figuring out these matters for yourself and for contacting the Governor who appoints the state's EPD Director and the GA EPD Director himself and other elected and appointed officials can vary. Among things to remember and consider as you make your decisions are the following:

- The source from which one seeks advice will to great extent determine the nature of the advice received.
- The French mystery directive *cherchez la femme* (find the woman who will be or provide the connection) and the more current *follow the money* are valid. Ask yourself what individuals or groups stand to suffer or profit financially or in prestige from a reduction of carbon emissions? You can bet that they will be those who will protest the loudest and longest.
- Be aware of and beware of snake oil salespersons (those who will offer you promises and spam or even information far from reality).
- Some lobbyists and lawyers and lawyer lobbyists doubtlessly will be among those to profit from the EPD air pollution directive, and the whole matter may well go through the courts systems.
- Note that government by crisis is becoming familiar.
- Clean air is a health primarily a health issue. **Do not allow anyone to attempt to convince you otherwise.**

V. SOURCES FOR ADDITIONAL INFORMATION: GCG does not speak on policy matters for other organizations, just as we do not want them to speak for us. We wisely respect Second Amendment rights. We abide by our Position Papers, and other groups have their own such documents, often called White Papers.

If a term used herein is not clear, look it up. Search engines like Google and Yahoo or Siri for iPhones will be helpful.

Contact other conservation organizations and/or go to their websites. They will have lots of great photos, too. Among the many that can be helpful:

Mothers and Others for Clean Air is especially good for asthma and children and the dangers of diesel fumes in school busses, especially with open windows when school starts.

The *Sierra Club* has long advocated for reduction of coal use because of carbon dioxide and ravages to the environment and workers in coal mining practices.

Clean Air Campaign focuses on Metro Atlanta air quality.

Georgia's Clean Air Force covers emissions standards.

Georgia Wildlife Federation understands that bad air has a negative effect on animals and the plants they eat, too.

Georgia Conservancy is outstanding for most conservation matters and has Atlanta area and a coastal office.

Check out websites for any of the *Riverkeeper* organizations. Clean air helps to make for clean water.

American Rivers promotes conservation and is developing water trails.

Go to soenso.com for but one of the many companies selling and installing both solar and wind generating equipment, and one with which I cooperated while serving on the board for another not for-profit organization.

Go to the website for Georgia Power or its parent company, Southern Company or any other of the energy providers for their approach to energy.

XII. CONCLUSION: Needs for energy grow, and each solution beings a collection of associated problems with answers that are not often easy. It is up to each of us to gather information, filter it though what we know and learn and make up our individual minds about important matters. Just as horses can be lead to drinking water but do not have to drink, we can receive information we do not absorb or use. Consider this newsletter also as review and supplement to information from Environmental Studies courses, sanctioned by National Garden Clubs and presented by GCG.

**“Clean the air! clean the sky! wash the wind! take stone from stone and wash them.”
T. S. Eliot, Murder in the Cathedral, first performance in 1935**