

Our Commitment to You

By Jim Compton

As your wholesale power provider, South Mississippi Electric is obligated to provide reliable, affordable electric energy to your system. While reliability and cost are important, equally important is our commitment to be environmentally responsible.

All of our owners and all of our employees live here in Mississippi. This is our home, too. We do our best to practice and promote wise energy use and environmental compliance while also providing energy for a sound economy. We must continually balance electric system upgrades for reliability; present and future costs for affordability; and environmental impacts for good stewardship and regulatory compliance. Appropriate attention to all three—reliability, affordability, and sustainability—is essential in order to meet the electric needs of the more than 400,000 homes, businesses, and industries we serve.

Thus the climate change debate is of great concern to us. Our member owners have invested more than \$1.25 billion in our bulk electric system. We have also committed to hundreds of millions of dollars in long-term contracts to supply power. The foundation of that investment is coal-fired generation. Coal and nuclear generation are the cheapest, most reliable sources of base load electric energy in the world. More than 55% of the power flowing through your meter comes from coal-fired generation, and we're currently upgrading our facilities to meet the most recent environmental regulations.

The climate change bills being discussed in Washington would require drastic reductions of CO₂, particularly from electric generating plants. There are several different bills, but all essentially will make it impossible to operate conventional coal generation in about 20 years. If a climate change bill passes, the next big issue will be how to replace the 55% of the electric energy which is produced from coal today. Applicable technology to accomplish the task is still in its infancy, so the changes will occur only at great cost or by a great reduction in the usage of electricity.

A friend of mine recently spent some time in Italy. Electric rates there are very high, so Italians have adapted to low usage. The village house she stayed in was like other Italian houses in that it had no air conditioning, no microwave, no freezer, no clothes dryer, and only a small refrigerator and clothes washer. Unemployment in Italy is high, so most homemakers do not work and have time each day to go to town to buy fresh food and prepare meals. As washing machines are small, most clothes are hand washed and dried on a clothes line. Beverages are served at room temperature because ice is not readily available. It is a low-electricity-usage lifestyle, and some in Congress and the world want Americans to adopt such a change.

Interestingly, Italy signed the Kyoto Accord as a means of reducing CO₂ levels assumed to be linked to global warming. Recently however, Italy announced plans to build new coal-fired power plants in order to reduce electric rates and meet their demand for more power usage. Other developing countries which are not part of the Kyoto accord, including China and India, are rapidly adding electric generation to meet increased industrial and residential demand. China is adding a new coal-fired generating plant every week—fifty per year—and none are equipped with modern emissions controls.



It's ironic that at the same time that Congress is considering legislation to end low cost, coal-fired generation in the U.S., we are increasingly exporting coal to China where it is burned without environmental controls to make products for export to the U.S. The CO₂ production will be the same, but the economic effect will be very different.

The large scale costs of producing electricity cannot be overlooked in this discussion. The fuel cost for our coal-fired plant in Purvis is about \$3 per million Btu (a common, comparable measurement). Natural gas has been promoted as an alternate fuel since it produces half of the CO₂ of an equivalent amount of coal, but the cost of natural gas is currently about \$11 per million Btu. Because fuel costs represent about 40% of your total electric bill, you can see that replacing the 55% of generation currently coming from coal with natural gas—even if enough natural gas was available and gas plants could be built—will dramatically increase your electric bill.

We have looked at a number of “renewable” energy projects in Mississippi—wind, solar, and biomass—in the last few years, but the economic results were always the same: double or triple the cost of conventional coal-fired generation.

“Members of electric cooperatives may be able to have the most say about climate change and power costs, simply because we want to do the right thing, rather than what is expedient or popularly driven by special interests.”

And reliability is an issue with wind and solar—are you willing to have electric power only when the wind blows fast enough or on a cloudless day? Renewable sources have their place, but for our region they are small, supplemental options.

Credible studies on the cost impacts of the pending Congressional climate change legislation, such as the Lieberman-Warner bill, all point to the same result: eliminating conventional coal-fired generation through cap-and-trade proposals will at least double your electric bill. The results from the best researched study I have seen projects a \$120/month increase in the average residential cost of electricity by 2015 if the legislation is implemented. By 2020 rates will likely be much higher. If we at South Mississippi Electric believed that the use of carbon-based fuel was indeed harming our environment, I would agree that perhaps such radical costs had a purpose. But the science still is highly debatable; many credible, ethical climate scientists

state firmly that there is no evidence that man-made CO₂ is causing an increase in global temperatures.

This insert is intended to provide information that should be part any discussion about climate change and power costs. Electric rates will be increasing over the next several years, due in large part to federal mandates and/or a failure to regulate fuel markets and railroads. Your Electric Power Associations will continue to question the facts in these debates and will fight to include reliability and affordability as essential parts of the decision making process. Believe it or not, members of electric cooperatives may be able to have the most say in these matters, simply because our numbers are so large and we want to do the right thing, rather than what is expedient or popularly driven by special interests. I hope you will join us, and let our representatives in Congress know about our concerns regarding these vital, complex issues.

Jim Compton is General Manager and CEO of South Mississippi Electric Power Association

The Power of 12



G R O W I N G M I S S I S S I P P I

News Co-op Members Need to Know

This is the second of a series of inserts to help members understand the many issues that affect their electric power supply.

South Mississippi Electric produces and delivers the electricity that its eleven member-owner cooperatives provide to their consumers. Together, our responsibility is to deliver reliable, not-for-profit electric service to more than 400,000 consumers in 56 counties. Every day—as a system—we work to demonstrate The Power of Twelve.

Environmental Questions. Affordable Answers? Real Responsibilities.

The quality of life enjoyed in the United States, and especially in Mississippi, is based upon safe, clean, reliable and affordable electric service. Electricity is the engine that drives our economy, which is now global and is experiencing increased competitive pressures.

The climate change debate now underway at all levels of our society also has the potential to significantly impact our economy, and thus the lives of 300 million Americans. Our political leaders are being placed in the difficult position of having to judge the complex and confusing issues and try to develop sound, public policy.

Electric cooperatives face growing uncertainty over what the future of U.S. climate change policy will be. Decisions made in the coming months could affect our ability to provide the reliable, not-for-profit electric supply which our consumers are accustomed to and expect.

It's important that all cooperative members become involved. There are many more sides to the climate change issue than what the average American hears or reads in the media, and by no means have the discussions reached a foregone conclusion. The stakes are very high and the debate, in large part, seems to be based on inexact science. The following Questions and Answers are designed to help inform you about what we know and do not know about climate change.

What is the climate change debate really about?

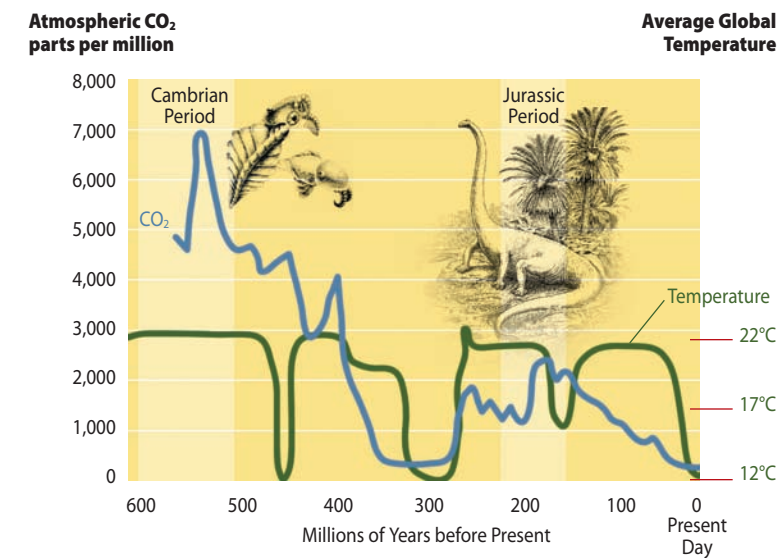
Some scientists believe that the Earth's temperatures are rising to the point where we will experience catastrophic changes. They believe that manmade emissions, primarily carbon dioxide (CO₂) that results from burning fossil fuels, have been steadily rising and threaten to increase global temperatures enough to create irreversible changes. Many scientists and experts are not convinced or disagree completely.¹

Doesn't the Earth experience temperature changes continually?

Yes, over the past 600 million years, the average temperature has fluctuated about 18 degrees F. During that time, the Earth has experienced ice ages and very warm periods. Over the past 400,000 years, there have been a series of ice ages lasting an average of 100,000 years, interrupted by warmer periods of about 10,000 years. During ice ages, temperatures drop by as much as 21 degrees F, sea levels fall dramatically and glaciers expand. During warm periods, sea levels rise and glaciers retreat. We are currently at the tail end of a warm period.²

Is there a relationship between CO₂ and global temperatures over the Earth's history?

There is no apparent close relationship, but the levels do seem to vary together.³ Some climate change proponents have recently suggested there is a cause and effect relationship—with higher CO₂ levels preceding higher temperatures—but the evidence actually suggests that high levels of CO₂ follow periods of higher temperatures. In fact, the rise in CO₂ levels consistently lag behind higher temperature levels by an average of 800 years.⁴



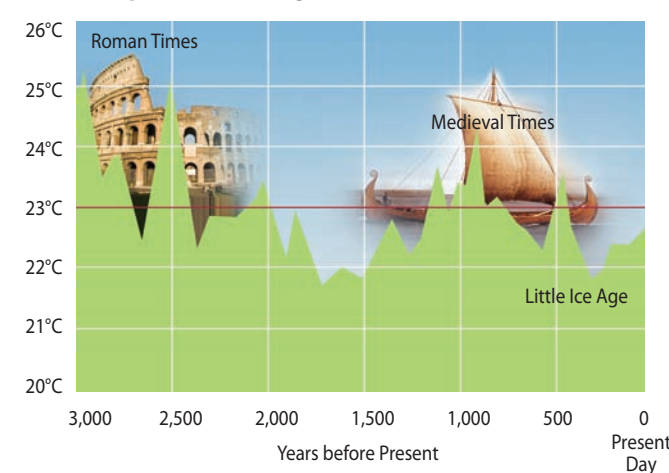
How have global temperatures changed over time more recently?

During the Roman Empire (3,000 years ago) and medieval times (1,000 years ago), temperatures were as warm or warmer than they are today. The "little ice age" began in the 1300s and ended in the mid-1800s.⁵ Over the past 100 years, temperatures have risen about 1 degree F, but much of that increase occurred before 1950, then the averages declined for the following 20 years. (In the mid-1970s, scientists and the mass media were actually proclaiming the coming of another ice age.)⁶ After rising slightly again for another 20 years after that, temperatures have actually remained stable for the past decade and are now trending slightly downward.⁷

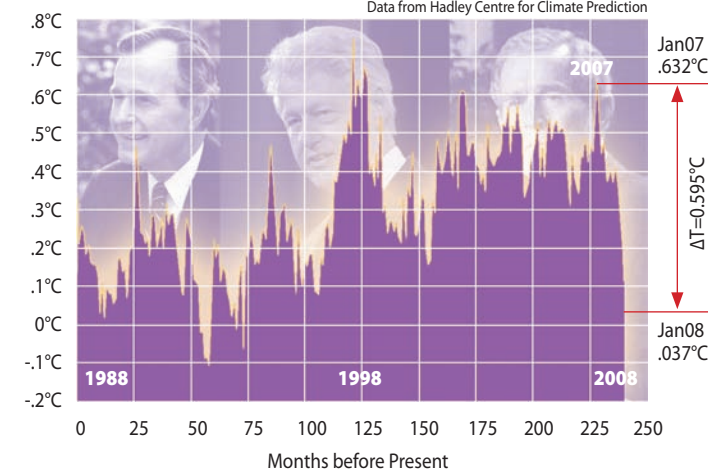
Why are there so many different predictions about increasing temperatures in the future?

Many of the predictions are based on theoretical computer models, which try to incorporate a wide variety of complex variables and conditions. By their very nature, the models try to reproduce the intricacies and changing relationships between components in the atmosphere, which are difficult to model. Some climate models, in fact, predict decreasing temperatures and many are not successful at predicting current conditions or past historical weather observations.⁸

Surface Temperature of the Sargasso Sea



Temperature Changes - Last 20 Years



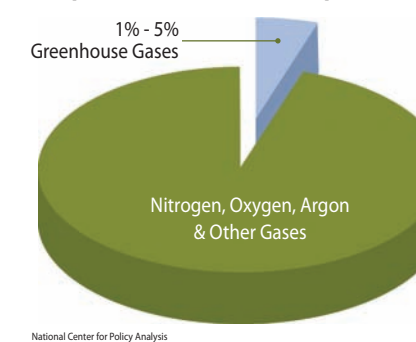
What about CO₂?

Most of the experts warning us about climate change point to rising levels of CO₂ as the main cause of global warming. Manmade CO₂ emissions, mainly from burning fossil fuels over the past 150 years since the Industrial Revolution, have risen about 35% (most of that since 1950).⁹ However, CO₂ and other greenhouse gases comprise a very small proportion of the Earth's atmosphere—CO₂ is actually less than 0.05% and manmade CO₂ is only 3% of that total.¹⁰

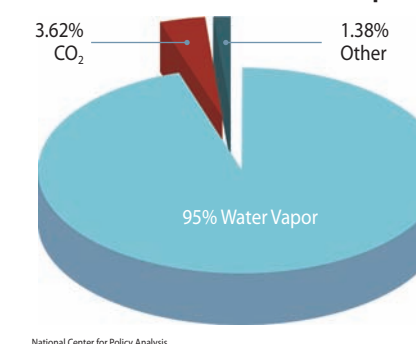
How much of the Earth's atmosphere is made up of greenhouse gases?

Nitrogen is the most plentiful component of the atmosphere, at 72%. Oxygen, Argon and other gases make up 23%. Actually, greenhouse gases as a group make up less than 5% of the overall atmosphere.

Composition of the Earth's Atmosphere



Greenhouse Gases in the Earth's Atmosphere



What are the greenhouse gases?

Water vapor makes up 95% of greenhouse gases (which make up 5% of the Earth's total atmosphere). CO₂ and other gases make up the final 5% of the small greenhouse portion.¹¹ With manmade CO₂ comprising about 3.4% of that total, it means that humans are responsible for about one-quarter of 1 percent of the greenhouse effect.¹² Other naturally occurring sources of CO₂ include volcanoes, ocean biologic activities, decaying plants and animal activity.

Is global warming causing more severe storms and weather-related deaths?

No. Neither the number nor strength of hurricanes has increased outside the natural range of variability.¹³ Tornadoes are not increasing in number or severity. Worldwide weather-related deaths have actually declined dramatically over the past eight decades, a reflection of the progress mankind has made in the prediction of and response to weather-related effects.¹⁴

What about more frequent or severe droughts?

There have been more frequent and longer lasting droughts in the past than today. Those also seem to have a natural variability.¹⁵

What about the Polar Regions, rising sea levels—and is Greenland melting?

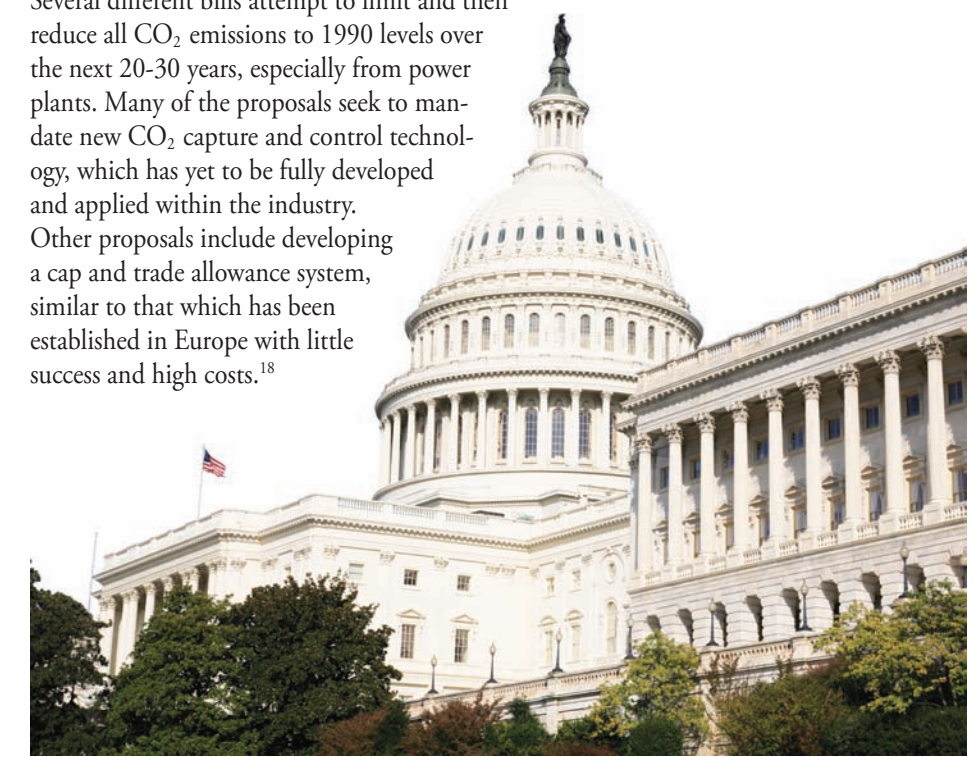
Sea levels have risen since the Earth came out of the last ice age, but the rate of rise since 1961 is less than one-eighth of an inch, which is less than historic averages.¹⁶ While ice has melted at the edges and thinned in other locations on Greenland and Antarctica, much of their interiors have thickened due, in part, to increased annual snowpack. When Greenland was settled by the Vikings in the 1400s, it had much less ice than it does today, hence its name.

Are the polar bears being adversely affected?

Due to legislation protecting Arctic mammals, polar bear numbers have increased since the 1950s and are higher now than at any time in the 20th century.¹⁷

What is Congress attempting to do with currently proposed legislation?

Several different bills attempt to limit and then reduce all CO₂ emissions to 1990 levels over the next 20-30 years, especially from power plants. Many of the proposals seek to mandate new CO₂ capture and control technology, which has yet to be fully developed and applied within the industry. Other proposals include developing a cap and trade allowance system, similar to that which has been established in Europe with little success and high costs.¹⁸



What are the economic estimates for adopting such legislation?

Conservative estimates indicate the total annual expense for the proposals may be as high as \$300 billion annually by 2020, which is equivalent to the current U.S. defense budget. An average Mississippi home may see an increase of nearly \$1,500 per year for electric service.¹⁹

How much CO₂ does the United States contribute to global totals?

Overall the U.S. contributes approximately 21% of the Earth's manmade CO₂, of which transportation sources contribute about 25% and electric power plants about 40%.²⁰ China is now emitting more CO₂ than the U.S. and is continuing to increase its levels, while America's emissions levels are slowing.

Wasn't the Kyoto Treaty supposed to address CO₂ emissions?

The U.S. did not sign the Kyoto Agreement because of the potential adverse effects it would have on our economy, as well as questions about the overall effectiveness of the agreement. (The Senate voted 95 to 0 against it in 1997.) Developing countries like China and India are not included in the agreement, even though their CO₂ emissions are rising rapidly. (China is adding one 500 megawatt coal-fired power plant with no emissions controls to its electric system every week.) Japan and the European countries that did sign the agreement have put some controls in place but are not reaching their projected reductions. Even if every country that signed the agreement complied, it is doubtful that it would have any noticeable effect on the overall level of CO₂ worldwide.²¹

What are the social implications for such increases to electric rates?

Without available, affordable electricity, our quality of life would be drastically affected. Modern society with all its benefits thrives today because of plentiful, economical energy. Making energy substantially more expensive would be regressive, slowing economic development and possibly our economy overall. There may come a point where some customers cannot afford service.²²



Environmental Questions. Affordable Answers? Real Responsibilities.

What should we as electric cooperative members do?

Decide for yourself how the climate change debate should be conducted. Educate yourself on the issues and understand the potential effects of the proposed legislation. We do not claim to have all the answers, but many more questions need to be asked before costly decisions are made and policies enacted. There are points to be discussed on both sides of the issue, but there is not a clear cut consensus on the need for making such drastic decisions. We find ourselves in an emotional, political dilemma and we have every right to ask our leaders to be thorough in their discussions.

What do Mississippi's electric cooperatives propose?

The reality is that, in Mississippi and across the country, we will soon need to build new electric generating plants. We support a full discussion of all the issues, and we particularly oppose enacting regulations that prevent new coal-fired plants (with modern technology) from being built. Coal is still—by far—our most plentiful and economical source of energy. More research about the effects of climate change should be conducted to ensure that stringent and expensive regulations are actually useful and necessary. Nuclear and renewable sources for generating electricity should be pursued, knowing that it will be many years before new nuclear plants can be brought on line and that renewables can realistically only produce little more than supplemental levels of power in some regions.

Just as importantly, programs devoted to promoting the wise use of energy should be expanded, as any reductions in energy use can help offset the upcoming need for more generation. Your electric cooperative is committed to providing members as much information as possible to help everyone be part of the solution to this issue.

Mississippi's electric cooperatives have only one responsibility—to provide reliable, affordable power to their members. We all must protect the environment we share and we will continue to do so, but we must also represent our member consumers in these vitally important discussions.

Coming in the next insert (August) — Issues related to fuel sources for generating electricity.

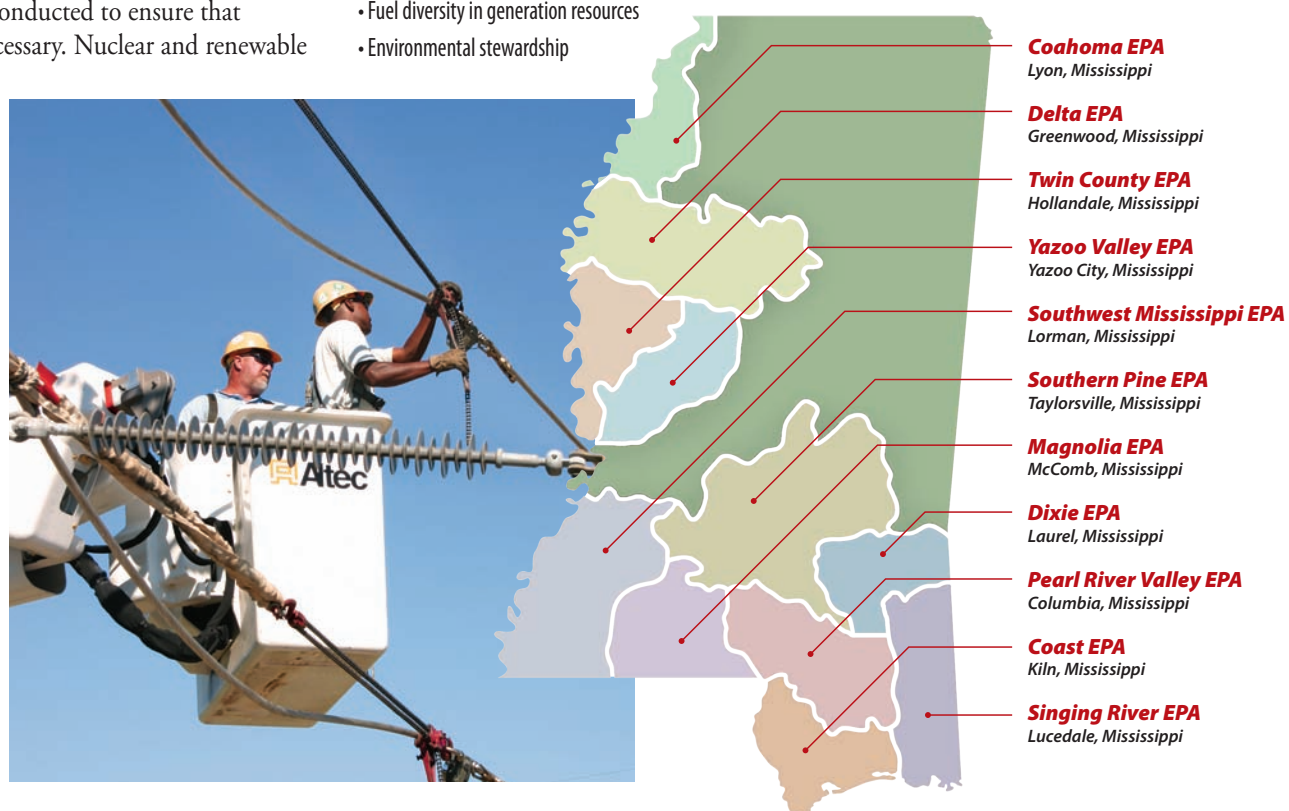
SMEPA at a Glance

Our Mission

Deliver the South's best value for safe and reliable electric energy and serve as a common resource for our Member-owners.

Our Competitive Strengths

- An experienced, talented work force
- A commitment to employee safety and system reliability
- A long-term contractual relationship with our Member Systems
- Financial health, including our Members
- Sustained load growth in our Members' service territories
- Long-range planning for cost-effective generation resources
- Fuel diversity in generation resources
- Environmental stewardship



Footnoted Sources

¹ Much of the information in this Q&A is quoted from "A Global Warming Primer," written by the National Center for Policy Analysis, <http://www.ncpa.org/pub/gwm.html>. Many of the noted sources refer to the document's research.

Dennis Bray and Hans von Storch, "The Perspectives of Climate Scientists on Global Warming, 2003," unpublished; available at <http://w3g.gkss.de/staff/bray/BrayGKSSite/BrayGKSS/surveyframe.html>.

² For temperature data, see C.R. Scotese, "Climate History: Ice House or Hot House?" PALEOMAP Project, April 20, 2002; available at <http://www.scotese.com/climate.htm>. Jean Robert Petit et al., "Climate and Atmospheric History of the Past 420,000 Years from the Vostok Ice Core in Antarctica," *Nature*, Vol. 399, No. 6735, June 3, 1999, pages 429-36.

³ For CO₂ data, see Robert A. Berner and Zavareh Kothavala, "Geocarb III: A Revised Model of Atmospheric CO₂ over Phanerozoic Time," *American Journal of Science*, Vol. 301, February 2001, pages 182-204; available at <http://www.ajsonline.org/cgi/content/abstract/301/2/182>. Hubertus Fischer et al., "Ice Core Records of Atmospheric CO₂ Around the Last Three Glacial Terminations," *Science*, Vol. 283, No. 5408, March 12, 1999, pages 1,712-14. Also see Urs Siegenthaler et al., "Stable Carbon Cycle-Climate Relationship During the Late Pleistocene," *Science*, Vol. 310, No. 5752, November 25, 2005, pages 1,313-17; and Leonid F. Khilyuk et al., "Global Warming: Are We Confusing Cause and Effect?" *Energy Sources, Part A: Recovery, Utilization and Environmental Effects*, Vol. 25, Issue 4, April 2003, pages 357-370.

⁴ Dr. John R. Christy, Director, Earth System Science Center, University of Alabama in Huntsville and chief climate officer for the State of Alabama; presentation to PowerSouth Energy Cooperative, January 2008, Perdido Beach, Florida.

⁵ John P. Bluemle, Joseph M. Sable and Wibjörn Karlén, "Rate and Magnitude of Past Global Climate Changes," in Lee C. Gerhard, William E. Harrison and Bernold M. Hanson, eds., "Geological Perspectives of Global Climate Change: AAPG Studies in Geology, No. 47," *American Association of Petroleum Geologists*, March 15, 2001, pages 193-212.

⁶ Christy, cited above.

⁷ Christy, cited above.

⁸ Christy, cited above.

⁹ Charles D. Keeling and Timothy P. Whorf, "Atmospheric CO₂ Records from Sites in the SIO Air Sampling Network" in "Trends Online: A Compendium of Data on Global Change," Carbon Dioxide Information Analysis Center, U.S. Department of Energy, 2005; available at <http://cdiac.ornl.gov/trends/trends.htm>. David M. Etheridge et al., "Historical CO₂ Records from the Law Dome DE08, DE08-2, and DSS Ice Cores," in "Trends Online: A Compendium of Data on Global Change," Carbon Dioxide Information Analysis Center, U.S. Department of Energy, 1998. And Albrecht Neftel et al., "Historical CO₂ Records from the Siple Station Ice Core," in "Trends Online: A Compendium of Data on Global Change," Carbon Dioxide Information Analysis Center, U.S. Department of Energy, 1994.

¹⁰ Atmosphere: Components and Characteristics of the Earth's Atmosphere," *Columbia Electronic Encyclopedia*, 2007, published on Factmonster.com. Available at <http://www.factmonster.com/ce6/sci/A0856758.html>. Access verified July 2, 2007.

¹¹ Taken from Monte Heib, "Global Warming: A Closer Look at the Numbers," *Plant Fossils of West Virginia* (Web site), January 10, 2003, table 3; available at http://www.geocraft.com/WVFossils/greenhouse_data.html. Also see Steven Millroy, "Coconuts in Wyoming?" *FOXNews.com*, June 17, 2004. Available at <http://www.foxnews.com/story/0,2933,123013,00.html>.

¹² Lee C. Gerhard, "Geologic Constraints on Global Climate Variability," *Search and Discovery*, Article No. 70030, January 2007; available at <http://searchanddiscovery.net/documents/2007/07005gerhard/index.htm>.

¹³ Patrick Michaels, "Global Warming and Hurricanes: Still No Connection," *Capitalism Magazine*, September 24, 2005. Available at <http://www.capmag.com/article.asp?ID=4418>. Figures by Patrick Michaels; derived from National Hurricane Center data and extending on data from Peter Webster et al., "Changes in Tropical Cyclone Number, Duration, and Intensity in a Warming Environment," *Science*, Vol. 309, No. 5742, September 16, 2005.

¹⁴ Indur M. Goklany, "Death and Death Rates Due to Extreme Weather Events: Global and U.S. Trends, 1900-2004," *Climate Change and Disaster Losses Workshop*, Hohenkammer, Germany, May 25-26, 2006. Available at <http://members.cox.net/goklany/Extreme%20Events%20Note%20Hohenkammer.pdf>.

¹⁵ National Drought Mitigation Center.

¹⁶ Gerald T. Westbrook, "Sea Levels and Globalization," *National Center for Policy Analysis, Brief Analysis No. 282*, October 9, 1998. Richard Alley et al., "Summary for Policymakers," in "Climate Change 2007: The Physical Science Basis," *Intergovernmental Panel on Climate Change*, February 2007.

¹⁷ Stefan Norris, Lynn Rosenrater and Pal Martin Eid "Polar Bears at Risk: A WWF Status Report," *World Wildlife Fund*, May 2002.

¹⁸ Electric Power Associations of Mississippi

¹⁹ Anne E. Smith, Ph.D., CRA International, presentation to G&T Managers Association, April 2008, Stevenson, WA.

²⁰ From chart "US Greenhouse Gas Emissions, 1990-2006," April 21, 2008, *Electric Utility Week* published by McGraw-Hill Companies.

²¹ Tom M.L. Wigley, "The Kyoto Protocol: CO₂, CH₄ and Climate Implications," *Geophysical Research Letters*, Vol. 25, No. 13, July 1998, pages 2,285-88. Also see Bjorn Lomborg, "Global Warming: Are We Doing the Right Thing?" *Guardian Unlimited* (United Kingdom), August 17, 2001; available at <http://image.guardian.co.uk/sys-files/Guardian/documents/2001/08/14/warming.pdf>.

²² Christy, cited above.