

CLIMATE ISSUES

Climate change questions? Real answers.



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. The climate change debate now underway at all levels of our society has the potential to significantly impact our economy, and lives of 300 million Americans. Our political leaders have a tough task — create policy on a complex topic that will affect all Americans.

Electric cooperatives and their members face growing uncertainty over what the future of U.S. climate change policy will be. The stakes are very high and the debate, in large part, seems to be based on inexact science. The following questions and answers are 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 temperature is rising to the point where we will experience catastrophic changes. They believe that manmade emissions, primarily carbon-dioxide (CO₂), have been steadily rising and threaten to increase global temperatures enough to affect the earth's climate. Other scientists and experts (nearly 45%) are not convinced or disagree completely.

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. 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 as much as 800 years.

How have global temperatures changed over time more recently?

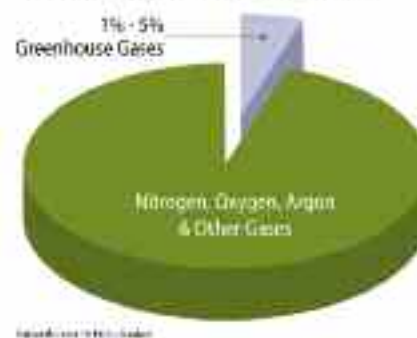
During the Roman Empire (2,000 years ago) and medieval times (1,000 years ago), temperatures were as warm as or warmer than they are today. The "little ice age" began in the 1300s and ended in the mid-1800s. Over the past 100 years, temperatures have risen about 1 degree F, but much of that increase 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 an ice age.) After rising slightly again for another 20 years, temperatures have actually remained stable for the past decade and are now trending slightly downward.

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). However, CO₂ and other greenhouse gases compose 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.

Composition of the Earth's Atmosphere



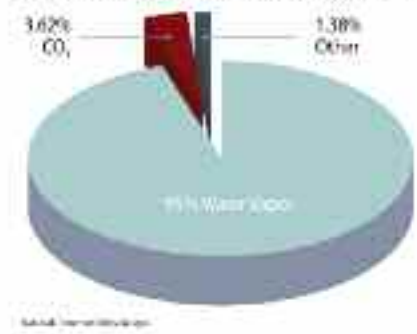
How much of the Earth's atmosphere is made up of greenhouse gases?

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

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

Greenhouse Gases in the Earth's Atmosphere



small greenhouse portion. With manmade CO₂ composing about 3.4% of that total, it means that humans are responsible for about one-quarter of 1 percent of the greenhouse effect. Other naturally occurring sources of CO₂ include volcanoes, ocean biologic activities, decaying plants and animal activity.

How much CO₂ does the United States contribute?

Overall the U.S. contributes approximately 21% of the Earth's manmade CO₂, of which transportation sources contribute about 33% and electric power plants about 39%. China is now emitting about the same amount of CO₂ as the U.S. and is continuing to increase its levels.

What is Congress attempting to do with 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 in limiting emissions and high costs.

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 or an additional \$125 per month.

Sources for this information are available by emailing Lydia Walters at lwalters@emepa.com. Text used with permission from South Mississippi Electric Power Association.