CITY OF
FAYETTEVILLE
ARKANSAS

Arkansans Can Take Steps to Respond to Climate Change

Arkansas is a resilient state, both environmentally and culturally. We enjoy ample water reserves and many natural resources, including timber and high-quality agricultural soil. We are highly resourceful people with cultural traditions of conservation, creativity, and strong communities. Stewardship and conservation are core values that all Arkansans can agree on, no matter where our families came from, how we vote, or who we worship. While these amazing resources and values provide us with a solid foundation for success and a sense of state pride, Arkansans know that we must be proactive to build a strong future for our state, including taking a proactive approach to climate change.

Doesn't climate change mean rising sea levels, melting permafrost, and extreme cold? Not likely in Arkansas! Then how will a changing climate affect the Natural State and what does a proactive response to climate change look like for Arkansas?

Before thinking about local impacts and solutions, let's start with a refresher on the reasons our climate is changing. The Earth's atmosphere is made up primarily of nitrogen and oxygen with many other secondary components including greenhouse gases in small quantities. The atmosphere allows solar radiation from the sun to pass through and hit the earth's surface. Greenhouse gases, primarily carbon dioxide, help to retain and reflect some of the heat generated from solar radiation, thereby creating the temperate climate that we enjoy on Earth. When the concentration of greenhouse gases in the atmosphere increases, more heat is retained and the earth is warmed like a greenhouse on a sunny day.

The concentration of carbon dioxide in the earth's atmosphere has been on a steady rise since the Industrial Revolution began in the 1760's. Concentrations of carbon dioxide varied for the past 650,000 years, but never exceeded 300 parts per million (ppm) until 1950. By 2013, global carbon dioxide concentrations had surpassed 400 ppm. Global industrialization and the associated combustion of fossil fuels including coal, oil, and natural gas produces large amounts of carbon dioxide. These human activities are the primary cause for the increase in carbon dioxide in our atmosphere and the resulting global climate shifts.

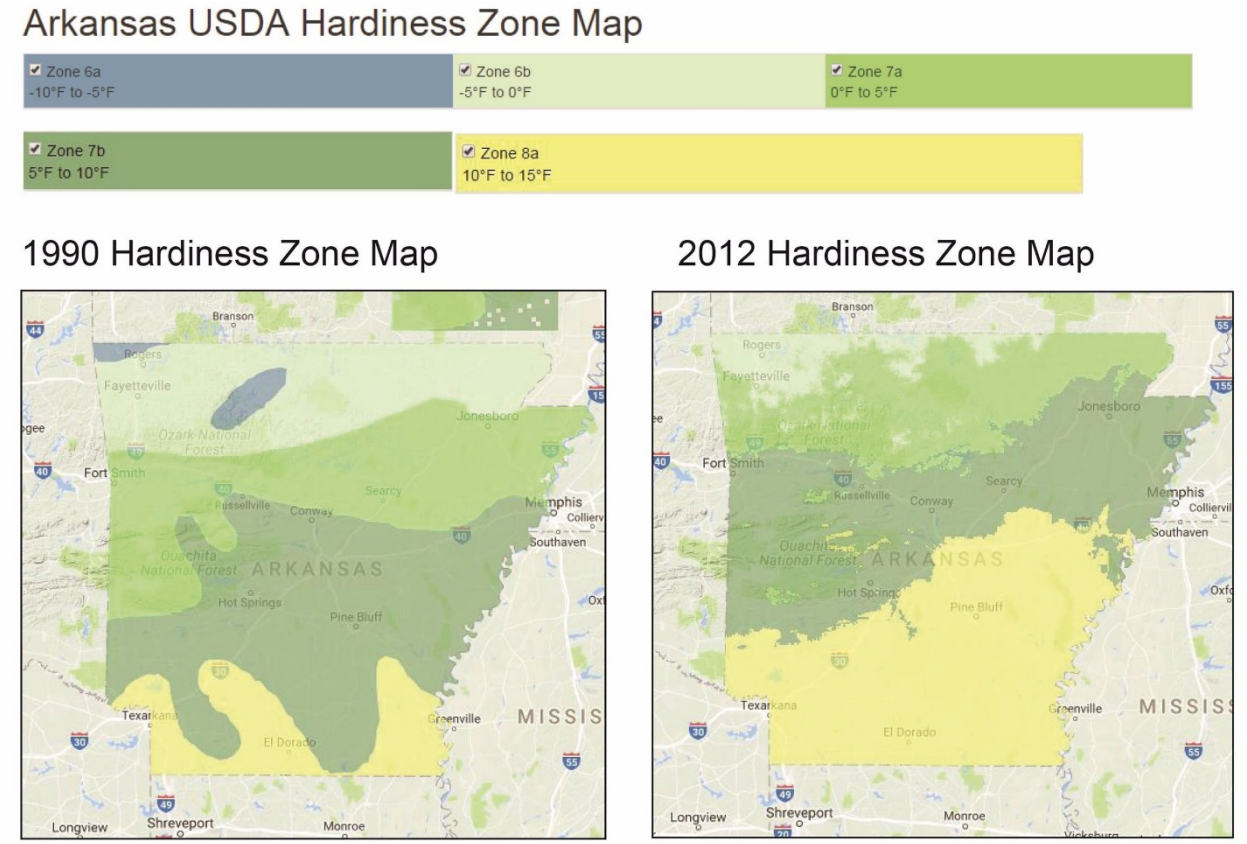
So how will rising carbon dioxide concentrations affect Arkansas' climate in the future and how is our climate already being impacted by temperature changes and global climate shifts?

The Arkansas Game and Fish Commission has studied the effects of climate change in our Natural State and has concluded that Arkansas will experience significant negative effects. In the 2015 Arkansas Wildlife Action Plan, the Game & Fish Commission notes the following items as current and future impacts of climate change:

- An increase in average yearly temperatures, particularly in Northwest Arkansas
- More frequent heat waves
- Public health problems including insect-borne diseases and heat-related illnesses
- Intense rainfall causing soil erosion
- Eastern farmland drought and flooding

The United States Department of Agriculture (USDA) has also studied climate change impacts on plant hardiness zones which tell the average minimum winter temperature in a region, a necessary metric for determining what plants can grow or thrive. Farmers must grow crops suited for their hardiness zone and when zones shift, substantial changes may be required in farming practices, planting and harvesting schedules, and even in the types of crops one can grow.

In 2012, the USDA published the newest hardiness zone map for the United States which showed that, in general, the boundaries of hardiness zones had shifted north by approximately two-and-a-half degrees of latitude (about 175 miles). The 175-mile change occurred in only 22 years, showing a substantial shift in what crops and plants are viable across Arkansas.



* Images of USDA Hardiness Zone Map courtesy of http://www.plantmaps.com/interactive-arkansas-usda-plant-zone-hardiness-map.php

With these changes already occurring, what can be done to stabilize our changing climate, especially given the current lack of federal leadership on this topic and the recent politicization of climate change in the United States?

The Paris Agreement is a worldwide commitment, currently signed by every nation on Earth, to attempt to keep global temperatures from rising more than 2°C. In June 2017, the Federal Government announced President Trump's decision to pull out of the Paris Agreement which rescinded the United States' commitment to reducing greenhouse gas emission 26-28% by 2025. In response to this decision, more than 2,500 governors, states, businesses, investors, universities, and mayors—including Fayetteville's Mayor Jordan—joined the "We Are Still In" movement, pledging to address climate change, ensure a clean energy future, and uphold the

goals set in the Paris Agreement. This ever-growing group currently represents more than 127 million Americans and $6.2 trillion of the U.S. economy.

At the Fayetteville City Council Meeting on Tuesday, December 19th, we will introduce Fayetteville's climate change response strategy in the form of the City's first Energy Action Plan. This bold plan lays out goals, strategies, and an implementation plan for the City of Fayetteville to cut 80% of local greenhouse gas emissions by 2050. Fayetteville's Energy Action Plan specifies actions in four goal areas—buildings, transportation, energy supply, and waste—with commitments to:

- Achieve 3% annual reduction in overall energy usage in buildings
- Build local support for national carbon emission reduction and carbon capture strategies
- Achieve 100% local government clean energy by 2030
- Achieve 100% community-wide clean energy by 2050
- Achieve 25% bike/walk/transit mode share by 2030
- Achieve 40% total waste diversion from the landfill by 2027

These broad goals are supported by 26 separate strategies and over 100 action items that collectively will provide incremental reductions in greenhouse gas emissions.

Beyond reductions in greenhouse gas emissions, Fayetteville's Energy Action Plan seeks to improve the quality of life for Fayetteville citizens through innumerable economic, environmental and social benefits. This plan lays the foundation for new jobs in clean energy sectors, the circular economy, and waste reduction, helping make our economy more robust and more resilient. Businesses will become more energy and resource efficient, leading to increased profitability, flexibility, and accountability. Our homes, transportation options, and food choices will be less carbon intensive, improving our physical health while reducing utility and fuel costs. The air we breathe, the water we drink, and the soil we rely on to grow our food will be cleaner, leading to improved health in our community.

Fayetteville's Energy Action Plan lays out a purposeful and proactive response to climate change that aligns with Arkansas' values and culture. The Natural State has a rich tradition of agriculture, timber production, and outdoor recreation, all rooted in the air, water and soil of our beautiful state. To preserve our legacy and be stewards of our future, Arkansas needs to be a leader in climate change mitigation and preparedness. Our economic security, environmental purity, and social stability rest in our ability to preserve the natural, economic, and human resources around us. By responding proactively and purposefully to global climate change, we can improve Arkansas for future generations while preserving and protecting the ways of life that we hold dear.

You may find more information on Climate Change in Arkansas at: http://www.fayetteville-ar.gov/3281/Climate-Change

You may find more information about Fayetteville's Energy Action Plan at: http://fayetteville-ar.gov/3246/Energy-Action-Plan