



FACTS ARKANSAS

A M E R I C A N S E C U R I T Y P R O J E C T

Pay Now, Pay Later: Arkansas

Arkansas will suffer significant financial costs as a result of climate change. Global warming will place the Arkansas pine timber industry at risk due to wider infestation of pine beetles and forest fires. This is particularly worrying, considering that 56% of Arkansas' land area is forest; it is an integral component of the Arkansas economy. The forest product industry is the largest manufacturer in state.¹

Higher temperatures and heat waves will increase energy costs for large employers. The poultry industry, which represented nearly 50% of the value of agricultural products sold in 2007, would likely be affected.²

Arkansas is home to immense natural gas reserves³ and significant biomass energy generation potential. Green jobs in Arkansas grew by 7.8% between 1998 and 2007 while overall job growth only reached 3.5%.⁴

According to a new study, a failure to mitigate the effects of climate change could begin to cause serious gross domestic product and job losses within the next several decades. Between 2010 and 2050, it could cost Arkansas \$11.9 billion in GDP and nearly 97,000 jobs.*

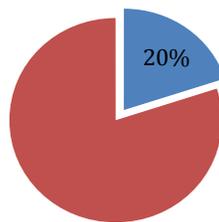
**GDP numbers are based on a 0% discount rate. Job losses are measured in labor years, or entire years of fulltime employment. Backus, George et al., "Assessing the Near-Term Risk of Climate Uncertainty: Interdependencies among the U.S. States," Sandia Report (Sandia National Laboratories, May 2010), 141. https://cfwebprod.sandia.gov/cfdocs/CCIM/docs/Climate_Risk_Assessment.pdf (accessed March 23, 2011).*

Admittedly, the effects of climate change, a complex and intricate phenomenon, are difficult to predict with precision. Informed scientific and economic projections, as we have used in our research, however, allow us to see that Arkansas faces significant losses in industries crucial to its economy if no action is taken.

Moreover, data shows Arkansans are in a position to benefit from the research, development, and use of renewable energy technologies. Arkansas depends on coal-powered plants for nearly 50% of its electricity, and the state spent \$463 million importing coal in 2008, costing roughly \$160 per Arkansan.⁵ Yet the state's natural gas supply, if fully employed, could potentially replace a significant portion of electricity generation—largely untapped,

natural gas already powers almost half of the state's residential heating needs.⁶ Should we fail to take action against climate change, Arkansans have much to lose.

Arkansan Labor Force Projected to be Directly Affected



Source: Department of Agriculture, University of Arkansas⁷

Pay Later: The Cost of Inaction

Heat waves, drought, and rampant pest problems will take their toll on the state of Arkansas should climate change be ignored. Arkansas' economic security is undoubtedly at risk; its gross state product (GSP) will be significantly affected as the state's main industries are projected to be among the most affected by global warming.⁸

Costs to the Agricultural and Hunting Industries

Vital to the state's economy, the agriculture, forestry, fishing, and hunting industries contributed nearly \$3.5 billion to Arkansas' GSP in 2007; employee wages from these sectors totaled \$627 million.⁹ Agriculture alone contributed \$16.3 billion to the state economy, or \$0.17 of every \$1, in 2008.¹⁰

Rising temperatures and associated effects, however, will increase industry costs and reduce yields, causing a decrease in the sector's profitability. A University of Arkansas Department of Agriculture report explains that the 2009 farm losses were the result of "a wet spring, dry June, and then excessive rainfall again from July through harvest," which degraded crop quality and necessitated additional fieldwork.¹¹ According to the National Oceanic and Atmospheric Administration,

2009 was quite possibly the state's wettest year on record.¹² The Nature Conservancy reports that precipitation in the region has increased by 20-30% over the last 100 years. The resulting increase in flooding causes soil erosion that is harmful for crop growth;¹³ 22.5% of the state lies in the flood zone.¹⁴

Admittedly, some losses can be attributed to other factors, but **a majority of the \$397 million¹⁵ in lost revenue experienced by Arkansas crop growers and grass hay producers in 2009 resulted from abnormal weather events that are projected to increase** in frequency and intensity as temperatures continue to rise.¹⁶ Soybean growers, for example, saw the greatest losses, reaching an estimated \$204 million.¹⁷ Rice, of which Arkansas is the nation's top exporter,¹⁸ experienced over \$46 million in losses in 2009.¹⁹ In 2003, rice contributed \$513 million to the Arkansas economy; production levels are expected to drop in the Mississippi Delta by 10-20% by the close of the century.²⁰

The timber industry stands to lose much of its income as a result of global warming. **The southeastern United States is predicted to see a 30% increase in forest fire risk by mid-century.**²¹ Furthermore, the spread of pine beetles in the region is also likely to devastate the Arkansas pine timber industry. For decades, infestations have had catastrophic effects in the region, resulting in losses of up to \$237 million in one year. Damages are expected to quadruple with increasing temperatures, which are more hospitable to the proliferation of such pests.²² Tens of thousands of Arkansans, who collectively bring home \$1.73 billion in personal income, are employed in this sector. The forestry industry in Arkansas adds roughly \$2.62 billion to the economy.²³ The

softwood industry makes up 75% of total output. The Nature Conservancy predicts major losses to this trade.²⁴

Additionally, the changing climate could reduce the duck population in Arkansas by as much as 50%, significantly curtailing hunting and associated expenditures and tourism worth over \$50 million a year, and also putting at risk a time-honored tradition passed on from generation to generation.²⁵

Impacts on the Quality of Life

Dramatic increases in summer temperatures, specifically in **the number of days with daytime temperatures above 90 degrees, will double to as many as 150 days a year in southern Arkansas by the end of the century.**²⁶ The significant increase in temperature could potentially result in an increase in heat-related illnesses and deaths. One study projects heat related deaths to increase from 11 each summer to 20 in Little Rock alone, claiming a total of 216 heat-related deaths by mid-century.²⁷

Pay Now: The Benefits of Taking Action

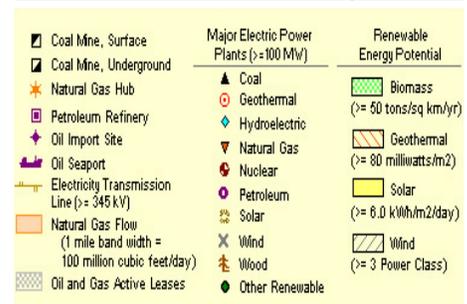
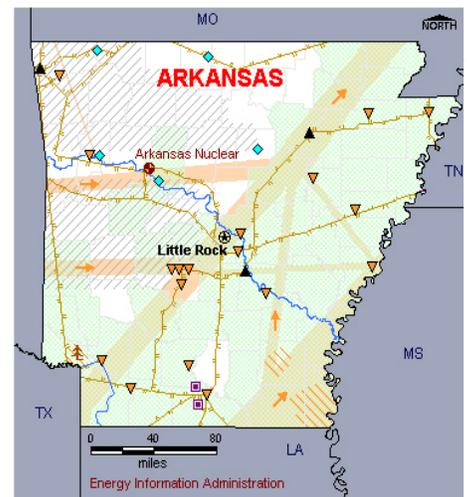
In contrast to these massive costs of inaction, Arkansas is well-positioned to benefit from a transition to a green economy. With extensive natural gas reserves and tremendous biomass potential, Arkansas could easily become self-sufficient in electricity production.²⁸ This could create thousands of new green jobs in the state.

According to a study conducted by the University of Arkansas, the natural gas industry has been growing in recent years. **Of the 32 natural gas producing states, Arkansas ranked**

12th in production levels in 2006 and 2007, moving up from 15th and 14th position in 2004 and 2005, respectively.²⁹

Arkansas' natural gas, worth \$3.6 billion in 2008, exceeded the market value of its top agricultural product, broilers, worth \$2.8 billion, and the combined value of rice and soybeans, valued at \$2.4 billion.³⁰ Arkansas has a stake in the further development of its natural gas industry. It is an important source of income for residents and a means to move away from coal-powered electricity, which provides nearly 50% of the state's electricity.³¹ Exploiting the potential of natural gas will also reduce greenhouse gas emissions and hedge against potential economic losses, ultimately saving the state money.

Arkansas is also rich in biofuels, which can be produced inexpensively and could generate 150% of Arkansas' residential electricity needs.³² **One Arkansas company estimates that it will be able to produce biofuels for**



under \$2 a gallon.³³ Estimates show that cellulosic ethanol, made from crop residue, could replace 40% of the gas used in the state.³⁴

Moreover, as a state with a large manufacturing industry, Arkansas is in a great position to build the parts necessary for green technology for export. While Arkansas is not rich in wind energy, neighbors like Texas are, and have begun to cultivate this resource.³⁵ **LM Glassfiber of Little Rock, a provider of wind turbine rotor blades, opened in 2008 and plans to employ 1,000 people by 2013.**³⁶

Though some progress has been made, green jobs have grown an average of 0.99% per year,³⁷ leaving an immense amount of room for improvement.

Conclusion

Arkansas must consider action on climate change not just in terms of cost, but also in terms of opportunities. If we give Arkansas' population, businesses, and investors clear and consistent signals by properly offering initiatives and cultivating demand, investment and innovation in renewable technologies will follow.

Arkansans will have to pay for the effects of climate change. The only remaining question is whether they will pay now, or pay later and run the risk of paying significantly more.

(Endnotes)

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