

## CLIMATE CHANGE IMPACTS ON TENNESSEE

### WHAT IS CLIMATE CHANGE?

The earth's climate is changing because of excess carbon dioxide pollution in the atmosphere, generated when fossil fuels like coal, oil, and natural gas are burned. This extra carbon traps more heat, like a greenhouse, which explains why 2000 to 2009 was the hottest decade ever recorded and there have been over 400 consecutive months with hotter-than-average global temperatures. Modern civilization developed in a stable climate and we have built our economy and way of life accordingly. Changes to our climate means that we are facing emerging hardships and vulnerabilities as the impacts of climate change unfold.

Some impacts from climate change include extreme storms, heat waves, and drought. These impacts have consequences for public health, safety, the economy, the environment, and our way of life.

Fortunately, we can protect against the worst impacts by limiting carbon pollution with energy efficiency and using clean renewable energy, like solar and wind.



Over the last decade, TN coal-fired power plants produced an average of 48 million metric tons of carbon pollution each year.



The devastating May 2010 flooding of Nashville, Middle and West Tennessee is an example of the kinds of extreme weather becoming more common in a warming world.

### HOW DOES CLIMATE CHANGE IMPACT TN?

It is difficult to link any one event directly to climate change, and it is important to recognize that most climate data is regional or even global in scope. However, decades of expert research and centuries of historical records can be compared with recent trends to illustrate how climate change is already impacting parts of the Southeastern United States. These impacts, combined with possible future impacts, are both cause for concern and the imperative for action.

- The **May 2010 deluge** that flooded much of Middle and West Tennessee is indicative of flooding from extreme precipitation that is becoming increasingly common in a warmer climate. Heavy downpours **increased** by 27% in the Southeast from 1985 to 2012 and are expected to increase even more in the future. These events take a large toll in terms of **physical damage, lost economic productivity, higher insurance costs, and public health disasters.**
- Hotter temperatures mean increased incidence or severity of **drought events**. The **2007 Tennessee drought** was the worst in recorded history. One town (Orme, TN) completely **ran out of water** and 500,000 Tennesseans were forced to comply with **mandatory water restrictions**. Droughts like these may occur with more frequency in a warmer climate.
- **Drought and heat waves** have a particularly negative effect on Tennessee's **dirty, high-risk** power plants. During heatwaves—and high electricity demands due to air conditioning—TVA's Brown's Ferry nuclear plant and Cumberland coal plant have repeatedly had to **cut generation due to the short supply of water**, necessary to cool the plant equipment. Nuclear and coal plants require **millions of gallons of water** a day to operate. If Tennessee continues to rely on water-intensive, dirty power plants, **dramatic drops in power production during heatwaves** are **projected to triple in frequency** by 2060.
- **Farmers** are expected to **lose more crops** to heat stress, drought and **unreliable winter weather**, which is expected to become more frequent in a warmer world. For example the entire state of Tennessee was designated a **disaster area twice in 2007**—once for the "Easter freeze," and once for the crippling drought.



## IT'S TIME FOR SOLUTIONS!

### PROMOTE CLEAN ENERGY

Clean energy, such as solar, wind, and energy efficiency, produces no pollution and provides jobs in our struggling economy. Studies show that the United States could easily generate 80% of its power from clean sources by 2050. Energy efficiency can dramatically reduce the amount of power we use in our homes and businesses and lower our bills. Solar power is unlimited energy from the sun, free for the taking if our state policies are revised to level the playing field between solar and riskier fossil power plants. Meanwhile, Tennessee has a huge wind resource that could be tapped for affordable and reliable power.

### OPPOSE HIGH RISK ENERGY

Some energy sources have greater risks associated with their use. Old, inefficient and dirty coal power plants must be retired to reduce levels of pollution that trigger asthma attacks and heart and lung disease, put mercury in our water, and cause climate change. Nuclear power plants don't emit carbon directly, but are extremely expensive to build, require large amounts of water to operate, generate dangerous, highly radioactive waste, and can have devastating consequences should an accident occur. Clean energy is a positive alternative to these risky energy sources.

## TAKE ACTION TODAY!

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### CONTACT YOUR ELECTED OFFICIALS

National and state-level climate and energy policies are imperative to ensure protection from the worst impacts of climate change and to secure the benefits of clean energy. Contact your elected officials in Washington D.C. and Nashville and tell them we must have climate and energy policies that:

- Invest in job-creating energy efficiency and clean energy
- Limit carbon pollution
- Preserve and strengthen the Clean Air Act
- Hold polluters accountable and end fossil-fuel subsidies

**References and links available on the online version of this factsheet:**

<http://www.cleanenergy.org/tn-climate-impacts>