

EFFECTS OF GLOBAL WARMING ON THE STATE OF OHIO

GLOBAL WARMING WILL HURT OHIO

The vast majority of the world's leading scientists now agree that human activities may lead to substantial impacts on the global climate. Consensus estimates warn of an average increase in temperatures of between 2 and 10 degrees Celsius over the next century, leading to more severe drought, rising sea levels, shifting seasons, and increased disease.

In Ohio, projections show temperature increases of 3-4 degrees year-round. These higher temperatures and more frequent heat waves could increase heat-related deaths and illnesses from insect-borne diseases like malaria and West Nile virus. West Nile was detected in 79 of Ohio's 88 counties in 2003, with over 100 human cases reported. Increased temperatures would make the state more habitable for mosquitoes that carry the virus, likely leading to increased human infections.

IMPACTS ON OHIO

- More frequent heat waves
- Increased illness from insect-borne diseases
- More frequent and severe flooding
- Atlanta summer heat in Cincinnati

A temperature increase in this range would also raise average summer temperatures in Cleveland to Cincinnati's level and Cincinnati summer temperatures to Atlanta's level. These higher temperatures could double or triple heat-related deaths in these cities. While climate change could bring increased rain to the state, with models predicting a 20% increase in fall precipitation, the cruel irony is that it would likely do more harm than good. Intense rainfalls would help recharge the state's water supply, but would also lead to increased soil erosion and stream eutrophication. This would also increase flooding in a state where flooding already occurs on an almost annual basis. Warmer temperatures could impose serious economic costs on the state's important agricultural sector. Higher summer soil temperatures would increase evaporation rates, possibly requiring costly investments in irrigation systems, which are currently rare in the state. Water systems would also suffer as warmer temperatures reduce dissolved oxygen levels in lakes, and cold water habitats for local fish populations could shrink or disappear altogether.

THE "CLIMATE STEWARDSHIP ACT"

The Climate Stewardship Act (CSA), introduced in the Senate by Senators McCain and Lieberman, and in the House by Representatives Gilchrest and Olver, is based on a similar and highly successful program implemented by the Clean Air Act, that has led to large reductions in acid rain-causing pollution with a minimum of economic costs. The CSA would create a market-based cap-and-trade system to reduce emissions

of carbon dioxide (CO₂) and other heat-trapping gases from electricity generators and other large industrial and commercial sources, covering 85% of the nation's emissions.

Under a cap-and-trade system, a fixed number of emissions allowances (permits) are distributed to emitters. One permit allows the holder to emit one metric ton of CO₂ or an equivalent amount of other gases. Companies that can run their business without using all their allowances can sell their surplus to companies whose actual emissions exceed their allowances. Under such a system, emissions are reduced by those who can do it at the lowest cost, thus minimizing economic impacts. Cap-and-trade systems, such as the one proposed in the Act, make reducing pollution a potential source of profit for companies, giving them an incentive to devise new and even cheaper ways to cut their emissions.

Beginning in 2010, the CSA would cap emissions at their 2000 levels. To help meet this target, the Act contains flexible mechanisms allowing companies to meet their reduction targets through a variety of ways, including investments in clean energy projects outside the U.S., international trading of emission credits and storage of carbon in trees and the soil.

ECONOMIC IMPACTS

Estimates show that the benefits of CSA would outweigh its costs by a ratio approaching 2:1. While the Act's provisions would impose about \$150 billion (net present value) in emissions reduction costs nationwide, it would generate \$250 billion worth of benefits in the form of increased energy efficiency, reduced energy expenditures and economic growth through 2025. Nationwide, the Act would create over 500,000 jobs by 2015. Our analysis of the job impacts is based on research from the Tellus Institute, a nonprofit research and consulting organization, which studied the effect of the Act's cap-and-trade program as well as energy efficiency and other technology incentive programs that would be funded through the Act.

Like the nation as a whole, our analysis shows that the net impact of the Act on jobs in Ohio is also positive. By 2015,

CLIMATE STEWARDSHIP ACT

- Cap and Trade
- Similar program reduced acid rain by 50% at 1/10 the estimated cost
- Lowest cost solution
- Protects rural electric co-ops

COST-EFFECTIVE FOR THE UNITED STATES

- \$250 billion benefits at cost of \$150 billion
- 500,000 new jobs by 2015

more than 22,700 new jobs would be created over a business-as-usual approach, growing to 36,000 new jobs by 2025. The gains would be spread throughout the state's economy, and while the coal mining and utility sectors could suffer some job losses statewide, these would be more than offset elsewhere through growth in construction, metals and other industries. Given the state's large manufacturing sector, Ohio stands to benefit from increased demand for metals, machinery and other components that would result from increased demand for products such as wind turbines and energy efficient equipment. The increase in demand for alternative fuels such as ethanol would benefit the state's agricultural sector as well. Ohio is the nation's 6th largest corn producing state and, because of its location, it can serve the large east coast fuel markets more easily than other corn-growing states. In addition to corn-based ethanol, Ohio farmers could see an increase in demand for farm waste and dedicated energy crops for producing cellulosic ethanol, other bio-fuels and electricity. The state is estimated to have enough biomass resources to provide electricity to about 65% of Ohio's homes.

IMPACTS ON OHIO

- Net increase of 22,700 jobs by 2015
- Provides incentives for clean coal technologies
- Biomass electricity could serve 65% of Ohio's homes

Nationally, not all sectors of the economy would benefit. Reducing CO₂ and other emissions would require reduced use of fossil fuels where carbon cannot be captured, leading to economic contraction in those

OTHER BENEFITS

- Consumers save through energy efficiency improvements
- Increased demand for agricultural products

sectors. Increasing energy efficiency, while providing substantial benefits to both residential and commercial energy consumers, leads to reduced demand for electricity, posing some costs on that sector as well. Overall, however, these costs are more than offset by gains in other sectors, like construction and manufacturing, which would see a substantial increase in demand spurred by the increased use of energy efficient buildings and equipment. Furthermore, the CSA will create incentives to accelerate the deployment and development of electricity generation from gasifying coal (integrated gasification combined cycle, IGCC), combined with technologies that capture the CO₂ and store it permanently in geologic repositories.

While IGCC is a proven and available technology and has been shown to be substantially cleaner than conventional coal-fired power plants, it has yet to gain significant market share. Current government policies are inadequate to deliver economically attractive systems. To accelerate the deployment of IGCC and further development of carbon capture and storage systems, along with the jobs they can create, in the time frame in which they will be needed to address global warming, we must adopt reasonable binding measures to limit

global warming emissions. Only then will the private sector have a business rationale for prioritizing investment in this area.

Ohio's consumers stand to benefit from the CSA as well. The energy efficiency provisions included in the Act will generate substantial savings in the form of reduced energy expenditures. While energy prices will increase moderately as a result of the pollution reduction requirements in the Act, these costs will be offset by reduced consumption and rebates of revenue raised by allowance sales. Energy savings for households and businesses will free up substantial resources that can be reinvested in state and local economies.

There are other benefits as well. All of Ohio's major cities already face air quality problems and were recently designated as "non-attainment areas" for ground-level ozone. This will worsen as increased temperatures exacerbate the problem. The Act will move Ohio toward clean coal technologies like IGCC with carbon capture and storage, allowing coal to continue to be an important part of Ohio's economy while both reducing global warming pollution as well as addressing air quality problems.

DON'T UNDERESTIMATE ENTREPRENEURIAL INNOVATION

As the Climate Stewardship Act is debated, a handful of naysayers will undoubtedly claim that doing anything to reduce global warming pollution will be economically disastrous. A close look at these predictions will reveal that they have little merit. For example, one such prediction is based on a six-year-old study of the Kyoto Protocol, a substantially different and more stringent proposal than the Climate Stewardship Act. The study was written by the same "hired guns" that produced the roundly discredited report claiming to show enormous economic benefits from opening the Arctic National Wildlife Refuge to oil drilling. Not surprisingly, both these studies were funded by the oil industry.

Studies predicting economic disaster from environmental protection invariably underestimate the ability of American businesses to innovate to solve new problems. We do this every day in reaction to global and local business conditions. Our ability to innovate is what makes the American economy the strongest in the world. When the Clean Air Act Amendments were debated in 1990, industry lobbyists predicted that the law would turn America into a third rate economic power. Not only have businesses survived the Clean Air Act, but we have thrived, finding new ways to address old problems. Climate change is a problem that needs to be addressed. Our leaders need to have confidence in our ability to innovate rather than trying to hide from problems. We have done it before, and we will do it again, but only if clear standards and appropriate incentives are established by legislation such as the Climate Stewardship Act.

E2: ENVIRONMENTAL ENTREPRENEURS

111 Sutter Street, 20th Floor
San Francisco, CA 94104
TEL (415) 875-6100 FAX (415) 875-6161
www.e2.org

REDEFINING PROGRESS

1904 Franklin Street, Suite 600
Oakland, CA 94612
TEL (510) 444-3041 FAX (510) 444-3191
www.redefiningprogress.org
info@redefiningprogress.org