

EFFECTS OF GLOBAL WARMING ON THE STATE OF NORTH DAKOTA

GLOBAL WARMING WILL HURT NORTH DAKOTA

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 North Dakota, this could lead to a number of problems. 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. Increased temperatures would make the state more habitable for mosquitoes that carry the West Nile virus, likely leading to increased human infections. With substantial agricultural resources, North Dakota is particularly sensitive to variations in the weather. The majority of the state's farmland is not irrigated, relying instead on surface waters. Increased temperatures could increase water flows in the winter and spring and decrease them in the summer. Evaporation rates are high in the state and many smaller streams already run dry in the summer. Reduced water flows in the summer would increase the need for large investments in irrigation systems. Though the instances of high-volume rainfall might increase in the winter and spring months, the relatively flat gradient of many of the state's rivers means that this might lead to wintertime flooding of agricultural lands that doesn't alleviate summertime water shortfalls.

IMPACTS ON NORTH DAKOTA

- More frequent heat waves
- Increased illness from insect-borne diseases
- Reduced summer water flows
- Increased need for irrigation systems

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 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.

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

Beginning in 2010, the Act would cap emissions at their 2000 levels. However, emissions could increase up to 15% beyond the cap if companies purchase "offsets" from other sources, such as "sequestration" credits from farms which increase carbon storage in soils and vegetation.

ECONOMIC IMPACTS

Estimates show that the benefits of the Act 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, it would generate \$250 billion worth of benefits nationwide 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 (www.tellus.org), 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.

COST-EFFECTIVE FOR THE UNITED STATES

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

Like the nation as a whole, our analysis shows that the net impact of the Act on jobs in North Dakota is also positive. By 2015, more than 3,200 new jobs would be created over a business-as-usual approach, growing to 5,100 new jobs by 2025. The gains would be spread throughout the state's economy, and while the utility sector could suffer some job losses statewide, these would be more than offset elsewhere through growth in construction and other industries. In addition, North Dakota ranks first in the nation in wind energy poten-

tial. Wind energy experts often call the state the “Saudi Arabia of wind.” While wind energy is growing in the state, with 66 megawatts of installed capacity, the state’s resources are relatively untouched. Wind potential is estimated to be over 1.3 trillion kilowatt hours, or more than 100 times the amount of electricity used by the state in 2000. Tapping even a small fraction of that capacity could generate substantial economic benefits, not only in the energy sector but also to farmers and ranchers who stand to gain by leasing parts of their land to wind generators. A 2,000-acre farm would likely receive over \$100,000 in land rental fees, while losing access to about 20 acres.

Our research likely underestimates the benefits to the construction industry that would result from a large increase in wind power in the state. Given North Dakota’s considerable wind energy resources, the benefits to the state construction and related industries are potentially quite large. Additionally, with such a substantial potential for wind power projects, the state could also see an upsurge in the manufacturing sector to supply the necessary machinery and other components, as the Act would spur additional demand for wind power equipment nationwide. North Dakota also stands to gain from the increased use of ethanol from corn, agricultural waste and dedicated feedstocks.

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 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, which would see a substantial increase in demand for new projects spurred by the increased implementation of energy-efficient technologies. The manufacturing sector would also see increased employment with increased demand for energy-efficient machinery and renewable energy components.

The CSA will also 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

IMPACTS ON NORTH DAKOTA

- Net increase of 3,200 jobs by 2015
- Provides incentives for clean coal technologies
- Increased demand for agricultural products for bio-energy
- Fostering local production of wind power components

OTHER BENEFITS

- Cleaner air through reduced burning of coal
- Wind energy could produce 1.3 trillion kWh/year

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 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. The CSA can help move North Dakota toward clean coal technologies, like IGCC with carbon capture and storage, allowing coal to continue to be an important part of North Dakota’s economy.

North Dakota’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.

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 dire predictions will reveal that they have little merit. For example, one is based on a 1998 study of the Kyoto Protocol, a substantially different and more stringent proposal than the CSA. 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. Both of these studies were funded by the oil industry.

Studies predicting economic disaster from environmental protection underestimate the ability of American businesses to innovate. 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.

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