ENVIRONMENTAL ENTREPRENEURS

REDEFINING PROGRESS

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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 over the next century, leading to more severe drought, rising sea levels, shifting seasons, and increased disease.

IMPACTS ON NORTH DAKOTA

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

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. Human infections of West Nile were detected in all but two counties in North Dakota last year. Increased temperatures would make the state more habitable for mosquitoes that carry the 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 farmland in the state is not irrigated, relying instead on surface waters. However, increased temperatures could increase water flows in the winter and spring and decrease them in the summer. Evaporation rates are high in the state, so that many smaller streams already run dry in the summer. Reduced water flows would increase the need for large investments in irrigation systems at the same time that summer water resources may be shrinking. Agriculture in the state will have insufficient water during the growing season. 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 flooding of agricultural lands without alleviating the summer water shortfalls.

THE "CLIMATE STEWARDSHIP ACT"

The Climate Stewardship Act (CSA), introduced by Senators McCain and Lieberman is based on a similar and highly successful program implemented in the Clean Air Act which has led to large reductions in acid-rain causing pollution with a minimum of economic costs. The Act would create a market-based cap-and trade system to reduce emissions of carbon dioxide and other heat-trapping gases from electricity generators and other large industrial and commercial sources, covering 85% of the nation's 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

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 carbon dioxide 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 by McCain and Lieberman, 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 and going forward, 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

COST-EFFECTIVE FOR THE UNITED STATES

- $250 billion benefits at cost of $150 billion
- 100,000 new jobs by 2015

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 in emissions reduction costs, it would generate $250 billion worth of benefits nation-wide in the form of increased energy efficiency, reduced energy expenditures and economic growth through 2025 (net present value). Nationwide, we estimate that the Act would create over 100,000 jobs by 2015. Our analysis is based on research at the Tellus Institute—a non-profit research and consulting organization (www.tellus.org)—which studied the impact of the Act's cap-and-trade program as well as energy efficiency programs that would be funded by the Act.

Like the nation as a whole, preliminary analysis shows that the impacts for North Dakota are also largely positive. While the coal mining and utility sectors would suffer losses of about

400 jobs statewide, these would be more than offset elsewhere, leading to a net increase in employment of about 200 jobs. The gains would be spread throughout the economy, though the construction industry would particularly benefit. In addition, North Dakota ranks first in the nation in wind energy potential. 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 in 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. While lease arrangements can vary, a 2000 acre farm would likely receive over $100,000 in land rental fees, while losing access to about 20 acres.

IMPACTS ON NORTH DAKOTA

- 600 new jobs in construction and other sectors (but 400 jobs lost in coal mining and utilities)
- Increased demand for agricultural products for bio-energy
- Fostering local production of wind power components

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 not only within the state but for export to other states, as the Act would spur additional demand for wind power equipment nationwide. North Dakota also stands to gain from the increased use of ethanol both from corn and, in the long run, from agricultural waste and dedicated feedstocks.

OTHER BENEFITS

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

Nationally, not all sectors of the economy would benefit. Reducing carbon dioxide and other emissions would require reduced use of fossil fuels, 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 like wind turbines.

North Dakota's consumers stand to benefit from the Act 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. Some are already making the rounds with their dire predictions. A close look at these predictions will reveal that they have little merit. For example, one such prediction is based on a 6 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 (ANWR) 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.

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