ENVIRONMENTAL ENTREPRENEURS

REDEFINING PROGRESS

ISSUE BRIEF
APRIL 2005

EFFECTS OF GLOBAL WARMING ON THE STATE OF CALIFORNIA

GLOBAL WARMING WILL HURT CALIFORNIA

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.

IMPACTS ON CALIFORNIA

- More active and damaging wildfire seasons
- Increased illness from insect-borne diseases
- Reduced summer water flows

In California, this could lead to a number of problems. Projections show temperature increases of about 5 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. Over 100 cases of the virus were detected in humans, birds, and horses in California's six southernmost counties in 2003. Increased temperatures would make the state more habitable to mosquitoes that carry the virus, allowing them to spread further north, likely leading to increased human infections.

Temperature increases in the projected range would raise Sacramento's annual average temperatures to Las Vegas' levels, while more than doubling heat-related deaths in Los Angeles. With substantial agricultural resources, California is particularly sensitive to variations in the weather. Regional disparities in water supply and demand will compound any negative impacts on the state's water system that climate change may bring. Because the state relies heavily on irrigation and reservoir systems, which are highly susceptible to increased evaporation, increased temperatures and evaporation rates could add significant stress to an already strained system. Earlier annual snowmelts would reduce spring and summer runoff in the state, so that water supplies would shrink just as agricultural, hydroelectric and household demands increase. And while winter runoff may increase, the state reservoir system does not have enough capacity to hold that increased water through the spring and summer months or to prevent flooding. Increased temperatures could also have a dramatic impact on the state wildfire season, with some regions likely to see a doubling of lost acreage, while the state's ski industry could face substantial impacts resulting from a shortened ski season, particularly in the spring.

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 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 (CO2) 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 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 so 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 covered entities 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 soil.

ECONOMIC IMPACTS

COST-EFFECTIVE FOR THE UNITED STATES

- $250 billion benefits at cost of $150 billion
- 500,000 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 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 (www.tellus.org), 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 California is positive. By 2015 over 62,200 more new jobs would be created over a business-as-usual approach, growing to 97,500 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. The gains would be spread throughout the economy, though the construction industry would particularly benefit. In addition, California ranks 17th in the nation in wind energy potential and leads the nation in wind energy deployment. Wind potential is estimated to be over 60 billion kilowatt hours, or enough to power 5% of households in the states. Given California's considerable experience with wind power, the state would be a natural home for a burgeoning wind industry. As the renewable energy incentives in the CSA increase demand for wind power across the nation, the state could see an upsurge in the manufacturing sector to supply the necessary machinery and other components.

IMPACTS ON CALIFORNIA

- Net increase of 62,200 jobs by 2015
- Increased demand for agricultural products for bio-energy
- Fostering local production of wind power components

In addition, California stands to gain in a number of other ways. For example, the CSA would allow covered entities to buy emissions allowances from forest and agricultural carbon sinks, which could provide an economic boost to the state's agricultural and forestry sectors. The state would also benefit from increased demand for celluosic ethanol, which can be produced from agricultural and forestry wastes in the near term, and, in the long run, from dedicated energy crops. For example, California plants over 500,000 acres of rice annually. Efforts are already underway to put the rice straw by-product to effective use as a feedstock for cellulosic ethanol and other biofuels, as the state phases out burning as a disposal method. The renewable energy incentives in the CSA would make these efforts more economical, helping to reduce greenhouse gas pollution while boosting farm incomes. The state's many dairy farms stand to gain as well, by using anaerobic digesters to handle their livestock waste. Digesters can convert the waste to bio-gas, which can be used to produce steam or electrical energy for use on the farm or sale to others. At the same time, by reducing their methane emissions, farmers could sell emission reductions in the trading market created by the CSA, yielding both savings in energy costs and profits from emission credit sales.

OTHER BENEFITS

- Consumers save through energy efficiency improvements
- Wind energy could produce 60 billion kilowatt hours/year

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 renewable energy and energy-efficient technologies. The manufacturing sector would also see increased employment with increased demand for energy-efficient machinery and renewable energy components.

California's consumers also stand to benefit from the CSA. 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.

California has a history of environmental leadership on issues like auto emissions, fuel efficiency, renewable energy and conservation. As a result of California's success in promoting clean energy and energy efficiency, the state has a head start on the rest of the nation in reducing carbon emissions. Were the CSA to become law, this would translate directly into an economic advantage for the state, as local producers have had more experience in developing cleaner, more efficient production practices than other states.

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 such prediction is based on a 1998 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. 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. 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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