

Legislation and Climate Change

CLIMATE CHANGE SERIES:
Part One of a Three-part Series

by Brenda Kleinjan

Editor's Note: *While others debate the science, leaders in Congress debate the politics of climate change. Congress' actions have a real implication on cooperatives. We aren't denying or supporting global warming as an issue. This series explores the impact of legislation on electric cooperatives and their members.*

MUCH HAS BEEN WRITTEN AND SAID IN THE GENERAL media about climate change.

One writer even seemed to scoff that folks living outside of Hollywood and New York City were being led astray by scientists and business leaders who dared to question scientific hypothesis. After all, is science only a popularity contest? Can we discuss climate change without discussing the consequences?

After months of rising attention, the mainstream media finally appears to be realizing that there will be significant costs associated with climate changes.

The *New York Times* editorial board frequently addresses proposals to limit greenhouse gas emissions. It stated recently that lawmakers have failed to educate their constituents on "an unpleasant and inescapable truth: any serious effort to fight warming will require everyone to pay more for energy."

In the coming decade, America's generation and transmission electric cooperatives anticipate they will invest an estimated \$35 billion in new power plants, transmission facilities and pollution-control equipment to meet increasing demand for electricity. America's investor-owned and municipal utilities will also need additional power.

While most agree on the need to reduce greenhouse gases, America's need for electric power continues to grow. America's electric cooperatives need to build more base load electric power plant capacity. Base load electric plants must run constantly and continuously to meet the day-to-day power needs of end consumers. Renewable energy projects like wind and solar cannot be scheduled or stored and therefore cannot supply base load power.

Currently, the lion-share of our nation's power supply – nearly half overall and two-thirds of that used by co-ops – comes from coal-based power generation.

As cost-effective technology is not currently commercially available to capture and store carbon dioxide (CO₂) produced by coal-based power plants, America's electric cooperatives – through their national arm, the National Rural Electric Cooperative Association – believe that any realistic policy must

include a substantial, prolonged research and development program to develop new technologies in an effort to achieve significant reductions in the future. Also, climate change is a global issue: American policy must encourage equal international efforts by all major emitting nations.

NRECA supports sustained effort in a wide array of electric power areas – energy efficiency, clean coal technology, renewable energy – all of which are necessary to meet growing demand in a carbon-constrained future. This view has been reinforced by recent work conducted by the Electric Power Research Institute (EPRI).

The report, "Electricity Technology in a Carbon-constrained Future," projects the nation will add at least one-third more load – amounting to 1.57 trillion kwh – to the grid by 2030, half of which will be generated by coal. However, EPRI sees potential for a 9 percent reduction in electric consumption – equivalent to the output of 50 large power plants – through efficiency measures.

The nation's generation and transmission co-ops will need to add up to one-third more base load generation to meet a projected 2.6 percent increase in load growth, plus install pollution-control equipment at existing plants.

"Over the next decade, electric co-ops need to build new power plants to keep the lights on – there's no way to avoid that reality," said Glenn English, CEO of NRECA, noting the country will need 50 percent more power plants than exist currently. "Energy efficiency and conservation measures alone won't be enough. Economics and issues of supply dictate that many of these generating facilities will use coal as fuel. We have to remind members of Congress to focus on generation technologies ready for prime time, rather than what might be on the shelf many years from now."

Closer to home, Basin Electric Power Cooperative in Bismarck, N.D., will retool its turbines at Laramie River Station in Wyoming. The upgrade to the turbines will increase the plant's total output between 24 and 45 megawatts.

The cooperative and its members are planning several billions of dollars in capital expenditures to address the future generation, transmission and distribution needs in the region in the coming decade.



While Basin Electric continues to expand its generating resources to meet the future electric demands of electric co-op members in a nine-state area, some environment protection changes will actually decrease efficiency.

Also driving up costs are proposed congressional changes to curb CO₂ emissions from power plants. Proposed legislation is varied, making it difficult to put a price tag on carbon allowances. Under a carbon dioxide trading program, allowances could range from about \$5.89 per ton of carbon (estimated carbon dioxide trading price) in 2012 to \$14.18 per ton by 2030, according to a recent analysis by the Energy Information Administration. Assuming these are the costs for allowances, Basin Electric's newest facility – the Dry Fork Station – could see costs ranging from \$21 million in 2012 and \$51 million in 2030 to purchase carbon dioxide credits.

“Already, we have a number of member-consumers who struggle to pay their electric bills. The reality facing our industry is that even more members will be unable to afford electric power,” said English in a recent editorial.

Yet, cooperative leaders will not avoid the issue.

“As the debate on climate change intensifies, we will give it to you straight: there is a price to pay to reduce greenhouse gas emissions and it will be expensive. But as co-ops, we have a responsibility to protect you, our members,” English wrote.

Cooperatives are expanding research and development of new electric technologies that are win-win solutions for the consumer, economy and environment.

Electric cooperatives are prepared to work with Congress to develop responsible climate change legislation.

Because more than half of U.S. electric production and more than two-thirds of electric co-op generation is from coal, NRECA's membership is keenly interested in developing responsible, cost-effective proposals to mitigate greenhouse gas emissions. Electric co-ops believe any effort to address climate change must focus on developing and deploying new technologies using appropriate incentives. Co-ops believe any proposal must also consider the economic costs of the plan and not cause significant negative impacts, must cover the entire economy and must address emissions from other nations.

“Electric cooperatives are urging lawmakers to keep in mind that electric power is not a luxury. It is a necessity. We join them in the belief that this issue is anchored in our core values – looking out for the member-consumers by providing safe, reliable electricity at the lowest possible cost,” wrote English in the editorial.

“We have an obligation to serve our members. We also have an obligation as citizens to grow responsibly. We are committed to responding to the world's need to reduce carbon emissions. It won't be without its challenges, but it's the right thing to do,” said Basin Electric general manager Ron Harper.

EPRI Plan Of Action To Reduce Carbon Emissions

The Electric Power Research Institute (EPRI), which provides technological research to the electric utility sector, comprises the world's most preeminent engineers. EPRI undertook a technical analysis of the potential for significant CO₂ emissions from the U.S. electric power sector. Using EIA's Annual Energy Outlook 2007 as a base case for carbon emissions over the next 25 years, EPRI calculated the CO₂ reductions that would result from reasonable but aggressive deployment programs in seven specific areas. These seven areas:

1. Energy Efficiency and Conservation – EIA projects electricity demand will grow 1.5 percent per year. EPRI believes it will be technologically feasible to reduce that to 1.1 percent per year, with substantial efficiency improvements in housing, appliances, and other electricity uses.

2. Renewable Energy – Technology improvements will be necessary for nearly all forms of renewables – solar, wind, geothermal, landfill methane, etc. – to substantially increase electricity production from these sources. Additionally, investments will need to be made to build the transmission lines necessary to bring renewables from where they exist (largely in rural areas) to where the energy is needed.

3. Nuclear Power – While the EIA projects a modest growth for nuclear power between now and 2030, EPRI's analysis shows that it could be technically feasible to develop an additional 50 nuclear power plants over that time. But that will require increasing public acceptance of nuclear and addressing the spent fuel issue in addition to building the first new nuclear plant in over a generation.

4. Advanced Coal Combustion – Technological advances have improved our use of coal over the past three decades. EIA estimates plants built between 2020 and 2030 will have efficiency rates of about 40 percent but EPRI believes we could reach the mid-40 percent range by 2020 and nearly 50 percent by 2030, if we can develop the materials needed to withstand the heat and pressure to build ultra super-critical plants.

5. Carbon Capture and Sequestration – There is no current commercially-available method to capture carbon dioxide from power plants, but research into chilled ammonia and amine processes is underway and must be accelerated. Further, significant questions remain over available geologic formations to store CO₂, liability concerns, and other issues before widespread sequestration will become a reality.

6. Plug-in Hybrid Electric Vehicles – Plug-in hybrid vehicles may allow commuters to travel moderate distances using only electricity and no gasoline with enough advances in the battery technologies needed to bring these vehicles into the market in a significant, cost-effective way.

7. Distributed Generation – EPRI's experts believe that opportunities exist for increasing the use of distributed generation technologies, including waste heat-to-energy projects that can provide electricity with reduced or no carbon emissions. The EPRI analysis lays out a plan of action but makes clear that no single “silver bullet” exists to reduce CO₂ emissions from the power sector – and that a broad range of responses is required. Additionally, these developments will require a substantial commitment of resources from taxpayers and ratepayers alike. EPRI has not yet completed an analysis of the economic costs of developing and deploying these technologies, but preliminary results are clear: it will cost much less to invest in developing new technologies than to attempt to reduce emissions with existing technologies.

ECONOMY-WIDE PARTICIPATION NEEDED

The EPRI analysis relates specifically and solely to the electric utility sector of the economy. In addition to the electric utility sector, advances in the transportation, industrial, commercial and other sectors of the economy will be required. NRECA strongly believes that any plan must cover the entire economy, not simply the utility sector.