

Currents

Your Link to Sussex Rural Electric Cooperative



High Voltage . . .

An Affordability Safety Valve

Opinion by Tom Tate

Regardless of your opinion regarding manmade climate change and what needs to be done or not done about it, legislation is coming out of Washington that can have a tremendous impact on our economy and on what it costs to heat and cool our homes, drive our vehicles, clothe our families and put food on our tables.

Taking into account my often jaded view of political solutions, we simply cannot afford poorly conceived and implemented legislation. Our economy has been pushed into a recession and is not in any condition to weather a rash of new laws and regulations that drive costs of living through the roof with no way to stop them. I frequently hear the phrase, "the law of unintended consequences" used when explaining why a regulation or law produced unacceptable results. Okay, I accept that no one can predict with absolute certainty how a new regulation will turn out. Therefore, any legislation should have an affordability safety valve.

Just what would this be? Well, how about something like: "passage and implementation drives the stock market down a certain percent?" How about, "compliance costs equal a percent of the GNP?" Number of jobs lost? Whatever the trigger it should be immediate and return us to the regulation level just before the law was enacted and implemented. Not claiming to see what the results of my safety valve would be, I think it only prudent to have a plan B, one that stops the damage from getting worse and gives us time to rethink a bad decision.

Be active in shaping our energy future because do-overs will be VERY expensive. Gosh, I suddenly feel like Earl Pitts, American. Okay, go here to learn about Earl, if you don't already know: <http://www.earlpitts.us/>.

Commentary by the President & CEO



The Co-op Commitment to Affordable Power

by Jim Siglin
President & CEO

Each month you budget for your phone, electricity, house, and car payments. Generally you have a good idea how much each bill will cost and plan your spending accordingly. But what if you couldn't control your energy costs? What if, each month, they climbed beyond your reach?

At Sussex Rural Electric Cooperative, we deliver affordable power to you every day. It's why electric cooperatives were created, and it's a commitment we plan to keep. But, national energy legislation, driven by climate change concerns, could force prices higher than many consumers can afford, effectively taking us back to the dawn of the twentieth century. Within the next sixty days, your legislators will be taking up this legislation; bills that have the potential to dramatically increase the price we pay all for electricity. There-

April 2009 • Vol. XII, Issue IV

Carbon Capture & Sequestration (CCS) Intermittency - An Unspoken Issue with Renewables	Page 2
Annual Meeting of Members	
Relative Costs of Energy Sources	Page 3
Clean Coal Technology	
Cap and Trade - Backgrounder	Page 4

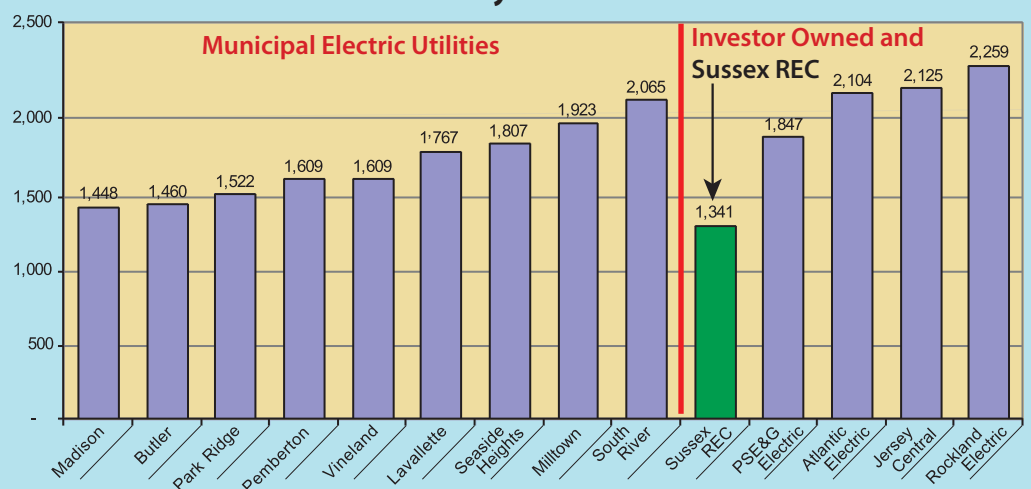
fore, we are dedicating this issue of Currents to providing you with information about the various options and proposals shaping the debate and what you can do to become involved.

In the 1920s and early '30s, central station electric service was a luxury that only 10 percent of rural residents nationwide enjoyed and those who had power paid dearly for it. When Franklin D. Roosevelt visited Warm Springs, Ga., in 1924, he was dismayed to find electricity for his small cottage cost four times what it did at his estate in New York. After being elected president, he created the federal Rural Electrification Administration by Executive Order to make power affordable for all Americans. As a result, electric co-ops were born. Your cooperative was formed in 1937 to make this vision a reality for the residents of rural Sussex County.

Innovations in line building pioneered by co-op engineers and the competitive pressure co-ops placed on investor-owned utilities to serve rural areas slashed the cost of providing electric service in the countryside by 50 percent or more. In the decades since, co-ops have established a proven track record of offering stable and affordable electric rates. Data from the U.S. Energy Information Administration (EIA), in fact, shows that since 2000 co-op electric rates have consistently run lower than the industry average. This is further proof that we're committed to keeping electricity bills within your means. Here in New Jersey, your cooperative is the lowest cost electric utility in the State, a testament to our focus on affordability.

continued on page 2

Average Annual Electric Cost per Household (\$) New Jersey Electric Utilities





INTERMITTENCY

- An Unspoken Issue with Renewables

by Tom Tate

Your author readily admits to a romanticized vision of renewables, especially wind and water power. I would love nothing more than to have a windmill or water mill chugging along at my home, delivering the power of the wind or the strength of the stream to my television, PC, gadgets and such without a worry of being beholden to my local power company.

Now let's say I get my windmill (not likely, given the composition of my neighborhood association board) or my water mill (even less likely since I don't abut a stream). Will I cut the lifeline to my utility and realize that dream of electrical independence and environmental cleanliness? Uh, no. You see, I have grown quite accustomed to flipping a switch, pushing a button or turning a dial and having electricity available immediately. I am not ready to abandon this reliability to the whims of Mother Nature. Regardless of how it seems, the wind doesn't always blow, the stream doesn't always flow and the sun doesn't always shine. Who'd uv think it?

We are now addressing the prickly issue of intermittency. Mother Nature is not bound by our desires or wills and unless we are willing to forgo the certainty of power supply, renewables cannot provide electricity in the manner most industrialized countries (us too) have come to expect. Given the obligation to serve concept of the utility world, the reality of intermittency requires a backup source, usually fossil fuel. The unfortunate part of the equation is that electricity has no shelf life. You can't sit it under a warming light like a fast food burger in anticipation of the next customer. When it is made, it must be used. Conventional power plants can't be turned off and on without some serious lead time (peaking units fueled by natural gas are the exception, the quite expensive exception).

Are we ready as a society to accept a loss of power, an intermittency that means our lives, at least those portions powered by electricity, are dependent upon what Mother Nature happens to be doing? Who would decide who got

the power and who did not? Some thorny issues to be sure. The bottom line for all of us in the debate is to interject some logic into the discussions and reflect on both the benefits and limitations of renewable energy sources.

I still dream about my windmill or water mill but do not plan to drop off the grid just yet.

Affordable Power...

continued from page 1

But, the struggle for affordable power that farmers and their neighbors fought three-quarters of a century ago has flared up again. When adjusted for inflation (with no pressure from climate legislation), the EIA predicts the price of electricity for residential consumers will climb 14.6 percent by 2030 but federal energy and climate change policy will likely impact energy prices further.

Electric cooperatives are needed once again to make sure affordable power will be available in 2030 and beyond. Our job, on your behalf, is to work closely with Congress to find the best solutions for addressing climate change while keeping the price of electricity within your means. Part of our efforts will include giving you information about what is being planned, what the alternatives mean to your budget and offering you a vehicle to become involved in helping shape an affordable and environmentally responsible energy future. This issue of "Currents" is being devoted to the issue of affordability and to giving you useful information about the various proposals and alternatives.

Sussex REC remains committed to providing you with safe, reliable, and affordable power but we need your help. Through the "Our Energy, Our Future"™ grassroots awareness campaign, co-op members across the nation are speaking out about the importance of keeping electric bills affordable. And as members of the only electric cooperative in NJ you need to involve everyone you know, member or not, to make sure New Jersey's voice is heard.

Now is the time to ask our elected officials: "Will you please work with electric cooperatives to be sure public policy meets my need for affordable electricity?" Don't let legislation conceived in a vacuum turn your energy bills upside down.

Visit www.ourenergy.coop today and send an e-mail to your elected representatives sharing your concern.

Sources: *The Next Greatest Thing*, U.S. Energy Information Administration, NJ Public Power Authority

CARBON CAPTURE AND SEQUESTRATION (CCS)

by Tom Tate

Yes, this phrase is a tongue twister. Try saying it three times fast! This is a frequently posited approach to carbon emission reduction that you will hear about in the news. Most often it will be referred to as *carbon capture* (due to the tongue twisting nature of the last word). What is it, how does it work and is it real? Read on and all shall be made clear(er).

CCS (see - even typing the phrase is tricky so the use of an acronym has supplanted the full spelling) is just what it says; systems are used to remove carbon dioxide from the stacks of coal power plants. The captured carbon is converted into a liquid through intense compression and that liquid is transported, via existing pipelines (so far), to a location where it is pumped underground and sequestered. The result is an emission from a plant that has less or no CO₂ and a liquid that can be handled by conventional means to move it to a disposal site.

How about sequestration? How is that accomplished? In the current demonstration projects, the liquid CO₂ is pumped into oil wells to help increase the amount of oil produced. The entire sequestration approach relies upon finding specific geologic formations that lend themselves to holding the CO₂. The good news is that studies indicate that the majority of existing

coal-fired power plants are within 5 miles or less of a potentially suitable geologic formation.

Is it a real technology and a viable solution? The answer is a definitive yes and no. Yes, there is a commercially available process presently used in the chemical industry (amine scrubbing). However, given the scale of the requirements for power plant CO₂ reduction, there is no commercial technology available today that can provide the needed scale for a power plant. And, it won't be cheap. According to an estimate from the Department of Energy National Energy Technology Lab, CCS will reduce the power output of a coal plant by 29% and increase the cost of electricity produced by 89%.

When will this technology be ready for "prime time"? CCS will not result in any significant reduction in emissions until at least 2020, according to two independent projections by the Massachusetts Institute of Technology (MIT) and the Electric Power Research Institute (EPRI). When you hear lawmakers, pundits and advocates urging investment in technology, this is one area that they will likely be referring to.

Want more? We can send you a report from the Cooperative Research Network that goes into more detail.

NOTICE OF ANNUAL MEETING OF MEMBERS

The annual meeting of members of Sussex Rural Electric Cooperative will be held on the 8th day of June, 2009 at 7:00 p.m. at the High Point Regional High School Auditorium located on Pigeon Hill Road, Wantage Township, New Jersey for the purpose of electing Board members, passing upon reports for the previous fiscal year and transacting such other business as may come before the meeting. The Committee on Nominations has submitted the following list of nominees for election to the Cooperative's Board of Directors:

- From District 1 **Thomas E Madsen**
192 Mudtown Road, Wantage, NJ 07461
- From District 2 **Ronald J. Dupont, Jr.**
P. O. Box 683, Highland Lakes, NJ 07461
- From District 3 **Barbara Miller**
112 Statesville Quarry Road, Lafayette, NJ 07848

One Director is to be elected from each District. • Doors open at 5:30 PM with refreshments. Registrants receive a \$10 bill credit. Prize drawings, Blood Pressure Screening, & more.

Thomas E. Madsen

Owner of the general contracting firm Tom Madsen, LLC for the last 32 years, Tom is seeking reelection to the seat in District One. Tom is a long-time member of the co-op community and is very passionate for the continued success of the Rural Electric Cooperative Program.

Tom's community activities include Secretary Sussex Kiwanis Club, Chairman of the Sussex County Chamber of Commerce Board of Trustees, and member of the Sussex County Juvenile Conference Committee.

Tom is a Certified Credentialed Co-op Director, also holds Board Leadership Certificate designation and represents New Jersey as a direc-

tor on the National Rural Electric Association Board of Directors, and serves on Sussex REC's Annual Meeting, Audit, & Building Committees.

Tom and his wife, Barbara, reside in Wantage and have two daughters.

Ronald J. Dupont

Ron Dupont is a native of Vernon Township, Sussex County. He is a 1985 graduate of Columbia University, and is part of the third generation to run his family's business in Highland Lakes, the Highland General Store. He has served as an officer in a number of county heritage organizations, including president of the Sussex County Historical Society. For over twenty-five years he has been an

author writing on regional history and the outdoors, including four books, numerous newspaper feature articles, and a web column. He lives in a c.1830 farmhouse in Highland Lakes with his wife Emilie and sons Sam and Ben.

Barbara Berge Miller

Retired principal of High Point Regional High School, Barbara is seeking reelection to the seat in District Three. She is a Certified Credentialed Co-op Director. She was a faculty member at High Point for over 30 years and is currently an adjunct professor at William Paterson University and Ramapo College of New Jersey.

Barbara's extensive education includes a B.A. from Trenton State College in Business Education, M.A. from Montclair State University in Student Personnel Services and Ed.D. from Seton Hall University in Educational Administration.

Barbara's community activities include Sussex County United Way Board of Directors past president and current member, Wallkill Valley Rotary Club International Service Chairperson, Rotary International District 7470 Youth Exchange Coordinator, and Board of Directors member of the Sussex County Community College Foundation and the Sussex County Y.M.C.A.

Barbara has been a recipient of several awards in her career as educational and community leader, including the Wallkill Valley Rotary Club outstanding member, N.J. Principals and Supervisory Association Golden Lamp Award for outstanding High School principal, the Dale Reinhardt Award for Excellence in Educational Leadership, and Rotary District 7470 Vocational Service Award. Barbara and her husband, Ned, reside in Lafayette and have five grown children.

RELATIVE COSTS OF ENERGY SOURCES By Tom Tate

As the discussion around how best to generate electricity intensifies, it will be useful to have a baseline for comparison. Your cooperative belongs to a national research cooperative that has constructed a spreadsheet to enable interested parties to determine what various sources of electricity cost consumers per kilowatt hour, the primary unit of billing for all electric utilities to consumers.

Using this tool, we developed the chart below for your reference.

The chart clearly illustrates that residential renewable sources are among the most costly. The most affordable include Large Wind, Farm Biogas and Landfill Gas. There are some speculative technologies still under development like tapping geothermal sources (think Old Faithful) and solar thermal.

If you are puzzling over just what co-firing means, let me provide the following definition for your elucidation and edification.

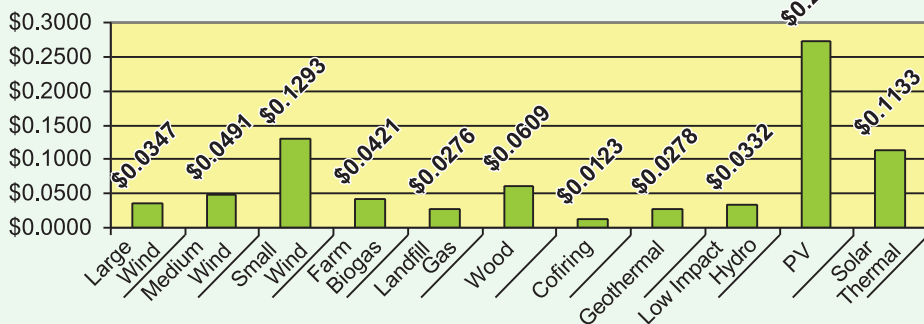
Co-firing is the combustion of two different types of materials at the same time. One of the advantages of co-firing is that an existing plant can be used to burn a new fuel, which may be cheaper or more environmentally friendly. For example, biomass is sometimes co-fired in existing coal plants instead of new biomass plants. Co-firing can also be used to improve the combustion of fuels with low energy content.

(source: <http://en.wikipedia.org/wiki/Cofiring>)

Yes, I recognize that Wikipedia is not always the most accurate source. However, additional research confirms the basics of the definition.

What does this chart tell us? That there are definite winners and losers in the renewables categories when looking at cost to the consumer. The top renewable sources will require sizeable tracts of land to make their construction cost-effective. Such tracts are generally in remote areas. We'll need transmission lines to get the electricity to where it is needed. When talking with your elected representatives about alternatives to fossil fuel generation please make sure you also ask them to include transmission in the mix.

Comparative Wholesale Cost of Renewable Energy



CLEAN COAL TECHNOLOGY

by Tom Tate

There are segments of the populous that argue there is no such thing as clean coal, that all coal plants must be shuttered in favor of clean renewables. On the opposing side, the abundance of coal and the advances in pollution control technologies make supporters equally ardent in their defense of coal as a fuel source. Today, 50% of all electricity in the US comes from coal and around the world, coal power plants are the most frequently used. (source: <http://www.pbs.org/now/science/coal.html>) As a point of comparison, China gets 68% of its power from coal and is building new plants at a blistering pace with absolutely no intent of controlling carbon emissions.

Why is coal such a popular fuel source? It is

abundant. (According to the US Energy Information Agency, the United States has 27.1% of the world's reserves of coal with an expected reserve of 234 years.) It is cheap. The technology to convert it into electricity is stable and affordable. And, its byproducts are things that can be used in other areas. For example, fly ash can be mixed into concrete to increase impermeability and make forming into pipes and other shapes easier.

Another area vying for investment is clean coal technology. This broad area includes carbon capture (see that article elsewhere in this document), but other technologies are available and in varying stages of completion that can be applied. Resorting to Wikipedia again



A key bit of climate legislation currently in the limelight is the implementation of a **Cap and Trade System** for carbon emissions. Just what is a cap and trade system? Read on for a primer into this proposed solution.

On the **Cap** side, each emitter of CO₂ is assigned a maximum amount they can emit or a cap (often referred to as allowances). Over time, these caps shrink until the total CO₂ emissions have reached some specified level. Typically, emitters are industrial, commercial and institutional businesses. Prime examples include any manufacturing facility, power plants (coal and natural gas), hospitals, colleges and so forth. The measure of performance is stated in a number of metric tons of CO₂. Caps would likely be established by an agency like the EPA.

On the **Trade** side, a market is created where firms with more carbon allowances than they need can auction them to companies that have less than they need. For example, Company A has a cap of 100 tons and because of changes to their production methods only need 50 of these tons. Company B has a cap of 100 tons but because its factory is older and in need of upgrades, they require another 25 tons. Company A would let the auction know they have 50 tons available. Firms like Company B would then bid for their needs in the auction. Whoever bids the highest price receives the needed tons. Large portions of the revenue from the auction go to the federal government who actually runs it. Over time, the number of tons available shrinks as emission goals are phased in meaning a cap will steadily increase in value and hence, cost.

The **theory** behind a cap and trade system is that emitters will seek the least cost approach

to controlling and reducing their emissions. For some firms, better pollution controls, more efficient equipment, energy conservation, or closing operations may prove the most economical way to achieve a cap. For others, the market provides the means to meet their cap target, at least in the short term.

What does such a program mean to us as consumers? Whenever a company faces increased costs that cannot be addressed by efficiency efforts or other traditional cost control approaches, the costs are passed along to consumers in the form of higher prices. Estimates from federal sources such as the Congressional Budget Office put the cost of the proposed cap and trade system at \$50 billion per year rising to \$300 billion per year and Mr. Obama himself put the amount of revenue to the federal government at \$646 billion dollars over the next ten years.

Where will **cost increases** be felt? At the thermostat, at the gas pump, at the grocery store, at the pharmacy, anywhere that the cost of carbon containment is passed along to consumers.

Does it work? That depends upon whom you ask. Supporters say it is hugely successful and efficient, pointing to the US's sulphur emissions control program created by the Clean Air Act of 1990 (a similar but not identical program). Detractors point to the failures in the European Union with their steadily rising costs and no abatement of emissions. Whichever side you take, the bottom line is that the program will raise costs of doing business and we will bear the brunt. Careful consideration needs to be given to any such system and all legislation needs an affordability safety valve to stop the program if the economic impacts are too steep.

(this one is pretty good), here is a definition for your reading pleasure:

Clean coal technology is an umbrella term used to describe technologies being developed that aim to reduce the environmental impact of coal energy generation. These include chemically washing minerals and impurities from the coal, gasification, treating the flue gases with steam to remove sulfur dioxide, carbon capture and storage technologies to capture the carbon dioxide from the flue gas and dewatering lower rank coals (brown coals) to improve the calorific quality, and thus the efficiency of the conversion into electricity. Clean coal technology usually addresses atmospheric problems resulting from burning coal. Historically, the primary focus was on sulfur dioxide and particulates, due to the fact that it is the most important gas which leads to acid rain. More recent focus has been on carbon dioxide (due to its likely impact on global warming) as well as other pollutants. Concerns exist regarding the economic viability of these technologies and the timeframe of delivery, potentially high hidden economic costs in terms of social and environmental damage, and the costs and viability of disposing of removed carbon and other toxic matter.

On a number of occasions, people and organizations already engaged in the political debate have urged Congress to think of our energy future and our energy independence in the same way the Kennedy Administration tackled the effort to put Americans on the moon. It dedicated scientific, financial and political resources to the task and let the might of American industry do the heavy lifting. A rational thinker might say that idea is perfect for the energy challenge we now face.

Be sure to encourage your elected officials to cast the net widely and consider multiple technologies for investment.

Currents

is published monthly by



Sussex Rural Electric Cooperative

Your Touchstone Energy® Cooperative
The power of human connections



64 Route 639 • P.O. Box 346 • Sussex, NJ 07461

973.875.5101 / Fax: 973.875.4114

Hours: 8:00 a.m. - 4:30 p.m., Monday through Friday

Website: www.sussexrec.com

E-mail: info@sussexrec.com

President & CEO

James M. Siglin

Board of Directors

Jack S. Haggerty Jr. Chairman

William Kovach Vice Chairman

Raymond Cordts Sec./Treasurer

Thomas Madsen

Barbara Miller

Arthur Smith

Thomas Webb

Stephen Zsenai

Ronald Dupont



SREC
RESOURCES, Inc.

NJ Lic. ELECTRICAL CONTRACTOR # 6262A
973-875-1365

After Hours: 877.504.6463