



Climate Change Law Could Cost You Over a \$1,000 Per Year

By W. Scott Ramsey- President & General Manager of Southern Illinois Power Cooperative

As the U.S. House of Representatives voted on Friday June 26, 2009 to approve the bill *HR 2454 the "American Clean Energy and Security Act of 2009" (ACES)*, many of us were likely working hard, running errands, or perhaps even looking for a new job. I had taken Friday off and was glued to my TV set at home, not watching my favorite channel but tuned into C-Span. On C-Span I was watching the final debate on the proposed ACES bill in the US. House. I suppose I could have been doing other things but this bill has me very concerned for the people of our community and our nation.

The bill's main focus is to put in place a system by which carbon-dioxide (CO₂) emissions are ultimately reduced. The Environmental Protection Agency (EPA) has stated that CO₂ is a dangerous gas which is linked to global warming. The unfortunate news is that CO₂ touches all our lives in some way such as mowing your yard, taking that car or motorcycle trip, the fizz in your soda, exhaling when you breath, and of course in the production of goods and services (electricity being one).

When SIPC recently ran the numbers for our emissions we estimated an impact to the homeowners in our region of \$240-\$1,300 per year per home; moreover, if the bill moves forward (as is) through the Senate and is signed by the President, it will leave open the potential for market speculation. If CO₂ emission allowances jump in price, utility bills could jump to several thousand dollars per year for each homeowner.

As the President and General Manager of Southern Illinois Power Cooperative (SIPC, www.sipower.org) I see it as our responsibility to generate and deliver reliable low-cost wholesale power to our member distribution-cooperatives and municipal systems in a good portion of Southern Illinois. The costs from SIPC affect a population of nearly 200,000 people in our region. It is important that everyone understand that an electric cooperative is owned by each member (the customer) and it is not in business to make a profit; therefore, whatever it costs to produce and transmit the power to your home is all that a cooperative charges. A cooperative does not sell stock; it has one focus, and that is each member/customer who purchases electricity. However, each time SIPC is impacted with a cost increase this must be passed on to the member/customer and collected, this would include the new legislation if it becomes law.

I thought it was time to speak out on the potential impacts to each person who uses electricity in their daily lives. Unfortunately, the estimated costs being discussed for the average U.S. household are just that, "average". The potential increase in the average household electric bill is being described as the

cost of a postage stamp per day or about \$150 per year. However, Illinois ranked number 3 in the carbon dioxide (CO₂) emissions for every kilo-watt of electricity produced, only Kentucky (#1) and Minnesota (#2) ranked higher. ***Needless to say when your state is near the top in the rankings your electric bill is not going to be just “average”.***

The reason for the high rankings is primarily that we get most of our energy from coal. A good portion of the mid-western U.S.A. utilizes coal for electrical power production. While the national average for energy produced from coal-fired generation is in the 50% range, in the mid-west the percentage jumps to approximately 70 percent. SIPC produces most of its generation from coal-fired sources with natural-gas and hydro rounding out the final numbers.

The current ACES bill would allow trading (buying) for a portion of the total CO₂ allowances needed to generate electricity. The other portion of the CO₂ allowances are being given out at no charge to electric utilities, but, as time passes, those free allowances will disappear. The reason for the reduction in free allowances thru time is that the ACES bill entices electric utilities to reduce their CO₂ emissions as each year passes. SIPC has a concern for each concept that is listed above. First, trading of allowances does introduce speculation by traders and creates more volatility in allowance pricing; this volatility will at times be evident on everyone's electric bill. We all remember what happened to energy prices in 2008 when we experienced the volatility of record-high gasoline prices. The second concern is that there are no commercially-available, proven cost-effective technologies we can purchase to install on our plants to reduce CO₂; however, it is the hope of SIPC that continued research and development can help foster the solutions necessary to safely capture and store CO₂.

It is very important that everyone understand that through time the electric power industry has been successful in developing the technology to cost-effectively capture the following emissions from coal-burning power plants:

(1) In the 1970s EPA stated that sulfur-dioxide (SO₂) emissions, when mixed with water-vapor in the atmosphere, were creating acid rain. Further, EPA felt acid rain was having negative impacts on forests and lakes that needed attention. The industry with the help of private and government funding developed scrubbing technology for coal-fired power plants to remove approximately 95% or more of those SO₂ emissions and the acid rain concerns went away.

(2) In the late 1990s EPA ruled that nitrogen-oxides (NO_x) emitted from power plants, when mixed with volatile organic compounds (VOCs, emissions from trees and vegetation), and abundant sunshine was creating ground-level ozone. This ozone was an ingredient in producing smog in our cities. Again, utilities with help from private and government funding developed solutions to reduce over 90% of those NO_x emissions and the smog problems have been greatly reduced in most cities;

(3) After the turn of the century scientist discovered that higher concentrations of mercury were being recorded and that the burning of coal might be a contributing factor. It was felt that mercury concentrations were on the rise in lakes, streams, and land; thus, ending up in the food supply, which posed a potential health hazard for humans. Strangely enough, scientists discovered that most of the mercury deposits west of the Mississippi River were coming from Southeast Asia via the jet stream, not

the USA. Mercury then became recognized as a global problem. Utilities again helped answer the call by working feverishly with research firms from the private and government sectors; thus, the combined effort spearheaded the development of technology to reduce mercury emissions from power plants by approximately 80-90%. This mercury reduction technology has been, or is being, installed nationwide today to help resolve this issue.

One of the problems with the ACES bill is that it does not give utilities enough time (bill proposes rules to start in 2012), to perform the additional research and development to find a solution to capturing and storing of CO₂. Obviously, industry and government have been successful using American ingenuity to reduce SO₂, NO_x, and mercury; if given the chance we can do it again to control CO₂. The bill focuses more on penalizing utilities (thereby penalizing Cooperative members/customers), than on assistance to help solve the problem. SIPC would like to see more assistance in solving the problem through technology development and fewer penalties. If we have to spend additional dollars I would hope we would want to spend them on fixing the problem rather than paying a penalty each month.

If the ACES bill were to be approved by the Senate and signed by the President as is, then SIPC has calculated the approximate cost impacts to the average home owner at various allowance prices (as dictated by the market). If the price was at the low end of the scale at \$12 per allowance then you would see a cost increase of approximately \$20 per month (some more and some less depending upon your electrical usage) or \$240 per year. If the prices on the market rose to \$50 per allowance then you would see an increase of approximately \$90 per month or \$1,080 per year.

Given that other emissions (SO₂ and NO_x) are traded on a commodity market today, we could look at their historical price fluctuation to get some idea of what may happen in a market where CO₂ allowances are traded. SO₂ prices sky rocketed to \$1,600 per allowance at the end of 2005 (see figure 1) and dropped to the \$300 range in early 2008. Prices for SO₂ allowances continued to come down to \$70 in 2009 due to court battles and the implementation of additional SO₂ removal scrubbers at power plants. NO_x allowances prices for the same time period were \$2,500 in 2005 and now have fallen to approximately \$1,100 today. Obviously, having a portion of the allowances traded on the open market introduces volatility in pricing.

One item that is not publically discussed regarding this subject is that the greatest portion of emissions from a coal or natural-gas fired power plant is by far CO₂; therefore, due to the "quantity" involved even a low allowance price (\$12-\$50) can have a large financial impact. However, SO₂, Nox, and mercury, are in much smaller concentrations within the emissions from a power plant. If you introduce market volatility (price spikes in allowances) for CO₂, there is a possibility of "the sky is the limit" pricing for electricity. For example, let's take today's allowance prices for SO₂ and apply them to the CO₂ emissions. At the lower end of \$70 per allowance the average homeowner would see an approximate increase of \$125 per month on their bill. However, if we were to apply an upper allowance cost of \$1,100 to CO₂ then the average homeowner would see an approximate increase of \$1,971 per month on their electric bill.



Figure 1: Historical SO2 price spike in late 2005. Courtesy of Chicago Climate Exchange, Inc.

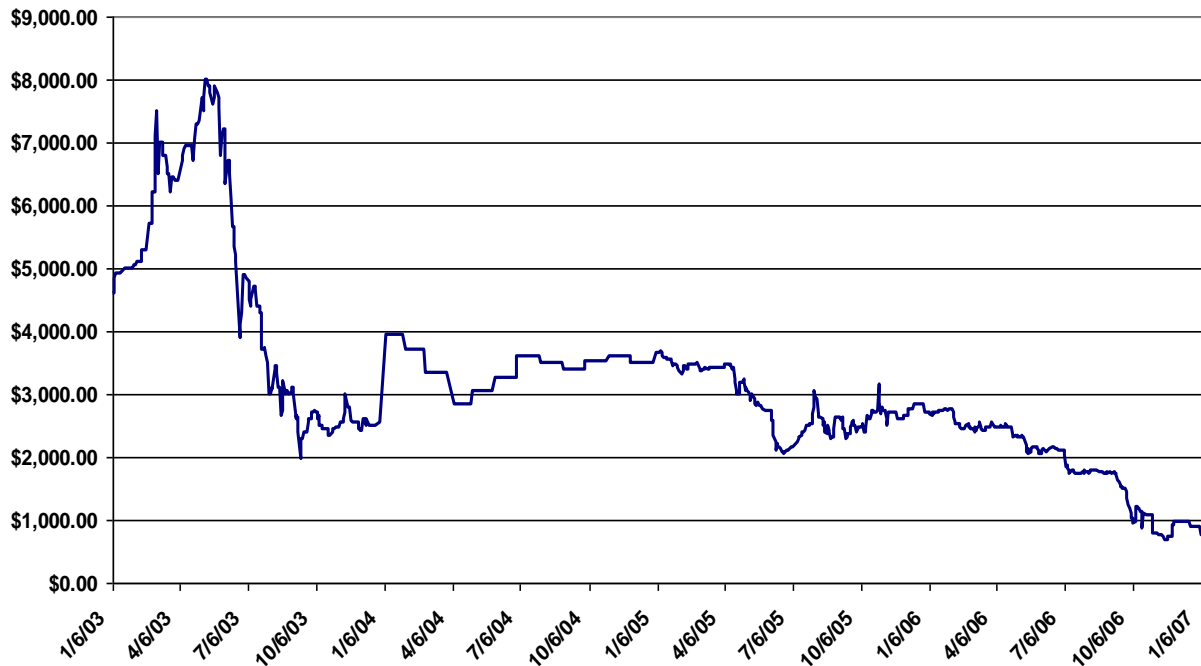


Figure 2: NOx Allowance pricing history. Courtesy of Chicago Climate Exchange Inc.

No one can guarantee where the CO2 allowance prices will be on the first day of trading for 2012 (the proposed start date of controls within HR 2454). In the past the assumptions have always focused on the price to actually control the emission (in this case CO2). Given technology for CO2 capture and storage for typical coal-fired power plants is still on the drawing boards and in pilot scale operation, it is difficult to estimate a cost impact. We can obtain a cost estimate for removal of CO2 from an Electric Power Research Institute (EPRI) report entitled *“Updated Cost and Performance Estimates for Clean Coal Technologies Including CO2 Capture- 2006” Report # 1013355*. You can access the report yourself at www.epri.com by typing in the report number and downloading the Acrobat file.

If you refer to page 8-7 and look at the bottom row entitled *“Cost of CO2... (\$/mt)”* and move over to the column *“SCPC wCap Retro”* this displays a cost per metric ton (or allowance) of CO2 at \$61.60 based upon the given assumptions (one of which is using Illinois coal). Keep in mind this would be the cost for one of the most efficient coal plants available (*when in reality most of the U.S. fleet is less efficient than this, making their CO2 removal cost higher*).

If we use a figure of \$62 per ton for CO2 removed (it would not include market speculation price increases), then the typical home owner in Illinois would see an approximate increase of \$111 per month or \$1,332 per year.

If HR-2454 becomes law, prices for transporting goods and services will also increase as it affects transportation fuels. All coal and supplies to SIPC are delivered by truck. The estimates above do not include added cost on the goods and transportation. The amount of power that SIPC could produce would also be decreased by as much as 25% because of the power required to capture CO2 from the

emission gas stream using today's technology. This loss of power will also create added costs to the overall electric billing.

SIPC is busy screening regional renewable-generation opportunities and also is one of the founding members of the new National Renewables Cooperative Organization (www.nrco.coop) which is a national effort to screen and develop large renewable projects. We are focused on how we would best meet HR 2454 or some future variant of this bill and keep your electric costs as low as possible.

The numbers on HR 2454 will be changing as it makes its way through the U.S. Senate; however, I wanted the people of Southern Illinois to get some concept of the costs we are looking at if this bill becomes law as is. SIPC believes that more time should be given for research and development to find a lower cost technology to keep everyone's electric bill affordable; moreover, SIPC really needs more time to develop renewable resources beyond what it currently has. With HR 2454, the start date for reducing CO2 emissions begins January 1, 2012; however, utilities would need to begin making decisions on how to meet any new law as soon as it passed. The simple fact that locating an acceptable site and requesting a permit for new renewable generation can take several years (not to mention the construction and start-up); thus, it is highly unlikely that most utilities starting today could have a new hydro dam, wind farm, or biomass plant permitted and in operation by 2012.

In summary, if HR-2454 becomes law, the people of Southern Illinois (and in many Midwestern states), will see sizeable increases on their electric bill. For cooperative members and municipal customers in our region, those costs could range from \$240 to \$1,300 per year as a minimum (excluding market price spikes on CO2 allowances). SIPC along with the utility industry needs more time (later than 2012) to develop the technology to cost-effectively capture and store CO2; and more time to develop additional renewable resources to help offset the CO2 emissions is needed. SIPC would like a cap (safety valve) put on the allowance price so that market speculation and volatility do not create unbearable price increases to electricity prices. The best solution to avoid market volatility is for the government to issue all allowances needed for SIPC's emissions and assist in helping find a technology solution to reduce CO2. As the technology could be affordably implemented; those free allowance allocations could be reduced.

I would encourage each reader to make their voice heard by contacting their U.S. Senators as bill HR-2454 moves to the U.S. Senate for debate. Tell them your concerns and let them know you are watching this proposal closely. Also, feel free to visit our national site regarding this issue at www.ourenergy.coop. If you are an electric cooperative customer in Illinois, you can send an email or printed letter with the easy assistance of this site. If you are not a cooperative customer and are concerned about your future electric bill going up, then you can still visit the site for information and SIPC would encourage you to go to www.senate.gov to contact your senators or try the information below:

Richard J. Durbin (Marion Phone- 618-998-8812) email- dick@durbin.senate.gov

Roland W. Burris (Springfield Phone - 217-492-5089) email- senator_rolandburris@burris.senate.gov

SIPC also is one of nine owners of the new power plant and coal mine being developed in Washington County, Illinois known as Prairie State Generating Company (PSGC) (www.prairiestateenergycampus.com). The two new coal-fired units are of the most efficient and well proven designs available today. The emissions controls are considered state of the art; however, there are no CO2 controls planned due to the lack of commercially available technology. PSGC will be hiring over 500 permanent high-paying jobs for Southern Illinois using Illinois coal. PSGC's owners span from Missouri to Pennsylvania to Virginia and its benefit to several states is in jeopardy under the current ACES bill (HR-2454). Senators not only in Illinois but in Missouri, Indiana, Kentucky, Ohio, Pennsylvania, West Virginia, Virginia, and Michigan will be voting on the ACES bill (or similar) in the near future. These Senators listed below (as of this writing) are reportedly in favor of (or undecided) with regards to passing the ACES bill. These Senators will be voting on a bill that will have effects all over the Mid-West if passed.

I would encourage you to contact these Senators to also let them know how you feel about the ACES bill on climate change. To send an email go to www.senate.gov and choose the state in the upper right hand corner and follow the links for each senator to email them.

Claire McCaskill (Mo.) (202) 224-6154

Evan Bayh (Ind.) (202) 224-5623

Richard Lugar (Ind.) (202) 224-4814

Sherrod Brown (Ohio) (202) 224-2315

Arlen Specter (Pa.) (202) 224-4254

Robert Casey (Pa.) (202) 224-6324

Jim Webb (Va.) (202) 224-4024

Jay Rockefeller (W.Va.) (202) 224-6472

Mark Warner (Va.) (202) 224-4024

Carl Levin (Mich.) (202) 224-6221

Debbie Stabenow (Mich.) (202) 224-4822

In my 24 years within the power industry I have never observed such a potentially far-reaching bill that will affect every facet of our lives. It has taken several generations to construct the electrical system we have and come to rely on today; no doubt the best system in the world. We must be very careful what

decisions are made which will affect our system for years to come. *I would strongly encourage each person to make their concerns known, for this is too important to say, "I will get to it later".*

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SIPC provides power to Southern IL Electric Cooperative, Southeastern IL Electric Cooperative, Egyptian Electric Cooperative Association, Tri-County Electric Cooperative, Clinton County Electric Cooperative, Monroe County Electric Cooperative, City of Redbud, IL, and City of Mcleansboro, IL. Clay Electric Cooperative will join SIPC in 2010.

