

Communication, “Clean” Coal Technology, and U.S. Global Warming Policy

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One of the greatest challenges of the 21st century is how to abate global warming quickly and safely by decreasing CO₂ emissions. In 2007-2008, new data on the rate of climate change caused scientists to heighten the alarm. In November 2007, Rajendra Pachauri, the head of the UN Intergovernmental Panel on Climate Change, said, “If there’s no action before 2012, that’s too late. What we do in the next two to three years will determine our future. This is the defining moment” (Romm). And in June, 2008, NASA’s climatologist James Hansen said “climate is nearing dangerous tipping points. Elements of a ‘perfect storm,’ a global cataclysm, are assembled.” Since “over 70 percent of the electrical sector’s CO₂ emissions” worldwide come from burning coal (Brown, 214), leading environmental writers such as Lester R. Brown and Tim Flannery argue that one of the first priorities is to stop building new coal-fired power plants (Brown, 215, 273, Flannery, 254). Flannery further argues that the coal-industry’s dream of fixing the problem of CO₂ emissions by sequestering it in the earth or the sea is not feasible (p. 254). Nevertheless, Democrats and Republicans from coal producing states are working hard to support so-called “clean coal” technology involving the capture and sequestration of carbon dioxide in the earth.

Using George Lakoff’s theory of political framing, this paper examines the framing techniques of one influential proponent of clean-coal technologies, Congressman Rick Boucher, Chairman of the Energy and Air Quality Subcommittee of the House Energy and Commerce Committee in the U.S. Congress. According to Boucher’s website, his subcommittee will write “the country’s first mandatory greenhouse gas control measure, which will have economy wide application while not dislocating any economic sector.” After chairing two Congressional hearings dealing with Carbon Capture and Sequestration [CCS] in 2007, Virginia Congressman Rick Boucher introduced a bill in the House on June 12, 2008, to create a non-governmental research corporation to stimulate the

early deployment of carbon capturing and sequestration technology. This Carbon Capture and Storage Early Deployment Act would allow utilities that burn fossil fuels to increase consumer rates in order to fund a one billion dollar a year research corporation.

Lakoff’s Concept of Framing

Cognitive linguist George Lakoff argues that human rationality is intimately linked to the body and is the product of what he calls “the embodied mind.” He first developed this idea in his 1980 book, *Metaphors We Live By*, coauthored with Mark Johnson, and updated in 2003. Lakoff and Johnson argue that basic human experiences, such as orientation to space, perceptions of time, and bodily sensations form the basis of reasoning, which is accomplished largely through metaphor and metonymy. Applying this theory to politics, Lakoff argues in his books, *Don’t Think of an Elephant!* and *The Political Mind*, that conservatives and progressives frame their arguments on different models of the family, with conservatives subscribing to “the Strict Father” model and liberals embracing “the Nurturant Parent” model. While everyone subscribes to aspects of both models in different areas of their lives, Lakoff argues that differing values of conservatives and progressives can be traced to their differing predispositions towards parenting.

These two different parenting models generate different metaphors of nature and our relationship to it. The Strict Father morality “includes the notion of the natural order of domination: God has dominion over human beings; human beings over nature; parents over children; and so on” (Lakoff, 2002, 212). In contrast, the Nurturant Parent morality views the natural world as “what gives us life, what makes all of life possible, and what sustains us. Thus, our relationship with nature involves attachment, inherent value, gratitude, responsibility, respect, interdependence, love, adoration, and continuing

commitment” (Lakoff 2002, 215). The conservative, Strict Father model uses metaphors such as:

Nature is God’s Dominion (given to man to steward wisely).

Nature Is a Resource (for immediate human use).

Nature is Property (for the use of the owner, and for sale and purchase).

Nature Is a Work of Art (for human appreciation).

Nature Is an Adversary (to be conquered and made to serve us).

Nature Is a Wild Animal (to be tamed for our use).

Nature Is a Mechanical System (to be figured out and put to use) (Lakoff, 2002, 213-214).

The Nurturant Parent model uses metaphors of nature such as:

Nature is a Mother (who provides for us).

Nature is a Whole (of which we are inseparable parts).

Nature Is a Divine Being (to be revered and respected).

Nature Is a Living organism (whose needs must be met if it is to survive).

Nature Is a Home (to be maintained and kept clean).

Nature Is a Victim of Injury (who has been harmed and needs to be healed) (Lakoff, 2002, 215-216).

Lakoff advises progressives not to fall into the trap of arguing within the frames of their conservative opponents, for to do so simply reinforces their opponents' frames (2008, 233). For example, the conservative frame of “tax relief” invokes the metaphor “Taxation is Affliction,” and leads to the inferences that “those taxed--the public--are victims, the proponents of taxation are villains and hence evil, and opponents of taxation are heroes and hence good” (2008, 236).

Background on Congressman Rick Boucher

Congressman Rick Boucher is serving his 14th term in the U.S. House of Representatives, representing the Ninth Congressional District in Southwest Virginia. His district is one of the largest geographical congressional districts in the eastern U.S., encompassing more than 20 counties. In 2008, Boucher received the Sunshine in Government Award, along with Representative Mike Pence, for promoting the Free Flow of Information Act to ensure that government is accessible, accountable, and open. Also in 2008, a non-partisan, public interest organization, Congress.org, ranked him 11th in effectiveness in the 435 member U.S. House of

Representatives. In 2007 he became Chairman of the Energy and Air Quality Subcommittee of the Energy and Commerce Committee, whose jurisdiction includes national energy policy and the Clean Air Act. According to Boucher's website, “As Chairman, he is uniquely positioned to develop national energy policy with the views of Southwest Virginia's industries such as coal and agriculture at the forefront” (2008, “About Rick”). His website also says that “With scientific opinion regarding the human contribution to global warming now deeply solidified, Boucher's Subcommittee will write this Fall the country's first mandatory greenhouse gas control measure, which will have economy wide application while not dislocating any economic sector” (2008, “About Rick”). In 2007-08, 72 percent of his campaign contributions came from PACs, and his largest industrial contribution came from electric utilities (\$212,297). In the House, he is the second largest recipient of funds from coal mining interests, according to Open Secrets.org.

Framing the Debate to Protect the Coal Industry and Electric Utilities

Prior to drafting new legislation to address global warming, Congressman Boucher held a series of hearings in 2007. His remarks, both in his opening statements as well as the hearings themselves, show a clear bias in favor of continued use of coal to generate electricity. Indeed, in his March 6 hearing, Boucher said,

I can say that my goal is to make sure that electric utilities under whatever carbon constraints we adopt have the ability to continue to use coal pretty much the same way they are using it today in those quantities, and my personal goal also is to protect the ability of coal to continue to grow as a percentage of the total fuel mix for electricity generation. So I am particularly very interested in making sure that we team the arrival of regulations with the availability of these technologies [CCS] for commercial deployment. (p. 13)

I will examine Boucher’s opening statements framing two hearings dealing with Carbon Capture and Sequestration [CCS]: the March 6 hearing on Carbon Capture and Sequestration, the March 20 hearing on “Climate Change: Perspectives of Utility CEOs,” as well as salient points from the March 6 and March 20 hearings. In addition, I will analyze his floor statement of June 12, 2008 introducing a bill in the House to create a non-governmental research corporation, paid for by consumers through an

increase in their energy bills, to stimulate the early deployment of carbon capturing and sequestration technology. Through my analysis I hope to assess how the hearings produced an outcome supportive of the coal and electric utility industries, whether the weight of the evidence cited in the hearings supports Boucher's CCS early deployment act legislation, and how Boucher's framing techniques influenced the outcome of the hearings.

March 6, 2007 Statement on Carbon Capture and Sequestration: An Overview

In introducing this hearing, Boucher emphatically frames coal as the "most abundant domestic fuel" and "least costly energy resource." Further, he announces that a key caveat to the goal of drafting climate change legislation will be to protect the coal industry, but he carefully masks this caveat by using more general language, as well as the bodily metaphor, "dislocating": "In drafting climate change legislation our goal will be to have our nation make a substantial contribution to resolution of the global problem *while not dislocating any domestic economic sector* [emphasis added]." But a following statement makes clear that he is interested in protecting the coal industry: "We should enable electric utilities that desire to use coal to have the continued ability to do so after the carbon control provisions we will write become effective." In order to enable the continued burning of coal, Boucher says that, "The technologies for carbon capture and sequestration we will discuss . . . will be essential to our ability to meet that test." Introducing urgency into his statement as well as the bodily metaphor "unbearable," Boucher argues, "If carbon controls take effect before the capture and storage technologies are available, there could be a rapid switch from coal to other fuels that would be unbearable for our economy." Without providing any discussion of alternative energy sources such as wind, solar, or geothermal, Boucher claims that, "switching away from coal would significantly increase electricity prices to the detriment of both residential and industrial electricity consumers." Assuming that consumers would switch to natural gas rather than renewable resources, he claims that a switch from coal to natural gas would force some companies to leave the U.S. to get cheaper natural gas, and that the "flight of jobs would worsen if fuel switching from coal to natural gas occurs." Further, increases in natural gas prices would cause farmers to "suffer" because they "use fertilizer manufactured in a natural gas intensive process." Boucher links the development of CCS and burning coal to effective climate change legislation, saying that: "To avoid these problems, we must protect the ability of electric

utilities to continue coal use. In a very real sense, therefore, the technologies we will discuss today will be the enablers of a successful climate change program for the nation" (Boucher, March 6, 2007).

Salient Points from the March 6, 2007 Hearing on Carbon Capture and Sequestration

The House participants with prepared or opening statements in this hearing consisted of Rick Boucher, Chair, and five representatives from the states of Illinois, Pennsylvania, Michigan, and Texas (Joe Barton and Michael Burgess). Ten other committee members asked questions. The ten witnesses included administrators from the U.S. Department of Energy (Thomas Shope) and the U.S. Environmental Protection Agency (William Wehrum and Ben Grumbles). One witness was the Director of the Climate Center of the National Resources Defense Council, a non-governmental environmental organization (David Hawkins), and one witness was a Texas attorney familiar with legal and regulatory issues dealing with the sequestration of carbon dioxide (Jay B. Stewart). The other five witnesses came from businesses or research laboratories dealing with carbon capture and storage, such as Babcock and Wilcox, GE Energy, and Lawrence Livermore National Laboratory. The hearing itself lasted almost four hours, and the single-spaced transcript is 69 pages long, excluding the attached prepared statements. Here, I want to focus on the salient information pertaining to key issues critical to supporting the research and development necessary to widely deploying carbon capture and sequestration in the U.S. The issues include:

1. Will such technology be affordable to American consumers?
2. When will such technology be ready for wide-scale deployment?
3. Does today's legal and regulatory structure permit wide deployment of such technology?

Will such technology be affordable to American consumers? Conservative Republican Dennis Hastert, from Illinois, introduced the theme of cost and affordability in his opening statement, by saying, "Make no mistake, it will increase the price of electricity. That is why before we jump into anything, we need to know how much we are asking the American people to pay and what we will get in return" (p. 3). He adds that, "We cannot ask the American people to pay a heavy price in jobs and consumer costs in the name of solving global

warming only to discover there is almost no environmental benefit” (p. 3). Congressman Barton noted in his prepared statement that a cap and trade program in Germany added 40 percent to the wholesale cost of electricity in Germany, without any CCS technologies. “Combined, carbon capture and sequestration and a cap and trade program could lead to a real rate shock for electric consumers. High electricity costs will only drive manufacturers overseas, and American jobs along with them.”

Addressing the cost issues, Thomas D. Shope, Principal Deputy Assistant Secretary for Fossil Energy, U.S. Department of Energy, said, “We can capture CO₂ today. What we cannot do is capture the CO₂ of combustion and maintain prices that we can afford for electricity and other energy-intense products” (p. 9). Shope stated that EPA has the goal of 2012 to have developed “a portfolio of technologies that are available” for CCS at “a reasonable cost . . . no more than 20 percent cost increase for PC, or post-combustion capture of CO₂, and a 10 percent cost increase for IGCC-type [Integrated Gasification and Combined Cycle] technologies, pre-combustion capture” (pp. 12-13).

Current technology, however, would come at a steep increase in cost to consumers and bring with it a decrease in electrical output. For example, Stu Dalton, of the Electric Power Research Institute in Palo Alto, California, says that, “current post-combustion processes are large energy consumers and could reduce the power plant electrical output by 30 percent” (pp. 49-50). He adds that their “most recent cost estimates suggest that for pulverized-coal plants, the addition of CO₂ capture using the currently most developed technical option would add about 60 to 80 percent to the wholesale cost of electricity in life cycle terms. That is not including any storage site monitoring, liability insurance, et cetera, which is unknown at this point.” While Dalton notes that the current cost premium for capture, drying compression and storage in IGCC plants is 40 to 50 percent and is thus cheaper than for PC plants, “IGCC plants initially cost more than PC plants, so that “the bottom-line cost to consumers for power from IGCC plants today is likely to be comparable to PC plants with capture” (p. 50).

Near the end of the hearing, Rep. Dingell asked each witness a yes or no question: whether the Department of Energy’s goal of commercial deployment of CCS “by 2012 of capture technologies that achieve 90 percent CO₂ capture at less than a 10 percent increase in the costs of the energy” is “an achievable goal?” (p. 61). The seven answers to this

question were decidedly mixed, with hedges, fudges, and worries about places to store the carbon dioxide. Dalton said, “Technology can be built by that date but it will not have established the long-term storage and the safety of that storage at that point” (p. 61). Mr. Fees said that “we believe that what is underway at DOE will work. However, our concern is that it will not be enough, that the combustion technologies will be there much earlier and a broader-based deployment of the combustion technologies may be limited by the availability of storage, and that is our concern, that we may actually limit our ability to deploy new plants with the new technologies because we won’t have anywhere to put the CO₂” (p. 61-62).

The only other “yes” answer, from Edward Lowe, general manager of Gasification Market Development, GE Energy, was based on the projected completion date of the Carson Hydrogen Power Project, in 2011, which will use CCS, storing the CO₂ in depleted oil wells. But the success of that project has yet to be demonstrated.

When will such technology be ready for wide-scale deployment? Knowing that a cap and trade law on CO₂ emissions would severely impact the coal industry and electric utilities, Boucher wants to make sure that “we team the arrival of regulations with the availability of these technologies for commercial deployment” (p. 13). Thus, he asked Mr. Shope, from EPA: “So when are we going to have that assurance? Is that 2012 or is that some later date?” Shope replied that “the first testing of our FutureGen plants” would be in 2012, and “it would be approximately 10 years before that technology is then widely available for commercial deployment and you could envision full-scale the technology of choice deployment in the 2045 time frame.” Boucher noted that Shope’s answer “is a longer time frame than others have suggested,” and then asked whether greater funding would “accelerate your time frame for the arrival of these technologies with commercial reliability.” Shope replied that if their budget were to double, they “could reduce the amount of time for that full deployment,” although he did not specify by how much (pp. 13-14). Under questioning by Mr. Hastert, Shope provided further information on the timing issue: “Now, when I mentioned the 2045 time frame, that would [be] the technology of choice, full-scale deployment. . . . FutureGen will be coming online in 2012, 3 years of testing, about 10 years following that, you are looking at a 2025, 2026 time frame for deployment” (p. 15).

One of the most startling statistics that emerges from the hearing is the sheer scope of the problem

that CCS must address: storing the 7 billion tons of carbon dioxide that the U.S. emits annually, mostly from coal power, according to S. Julio Friedmann, of the Carbon Management Program, Lawrence Livermore National Laboratory. To help visualize this statistic, Friedman points out that “Just 1 billion tons of anything is more mass than all the human beings on the planet” (p. 46). Imagine moving seven times this mass every year and storing it forever, and one can understand the challenge that CCS poses. In his book, *The Weather Makers*, Tim Flannery visualizes the necessary scale of carbon sequestration by writing, “Imagine injecting twelve cubic miles of liquid CO₂ into the earth’s crust every day of the year for the next century or two” (p. 254).

A great irony that runs through this 2007 hearing is that many of the participants reference a demonstration project of a “clean coal” plant called FutureGen, which was supposed to have near zero emissions of CO₂ and be running by 2012. But in January 2008, the US government cancelled its funding for the project, citing massive cost overruns of nearly double the original estimates, amounting to 1.8 billion dollars (Smith and Power). Without the testing that would have taken place at FutureGen, the timing for wide-scale deployment will be further delayed. Similar CCS projects have been cancelled in the UK, Canada, and Norway, due to cost overruns and delays (Rochon, 18). According to the United Nations Development Program, CCS “will arrive on the battlefield far too late to help the world avoid dangerous climate change” (Rochon, 17).

One other irony noted by Representative Edward Markey deals with the “potential for utilities to exploit loopholes in the 2005 Energy Policy Act to get subsidies for coal plants that don’t actually capture CO₂ but are merely capture-capable or carbon capture-optimized” (p. 66). Markey explains that a utility executive might build “a big open building attached to it” and qualify for a subsidy by claiming that it “was designed to accommodate installation of carbon capture technologies” (p. 19). Markey continues, “Saint Augustine used to say: Oh, Lord, make me chaste but not just yet. These utility executives are saying Oh Lord, make me carbon-free but not just yet; I am getting ready to be carbon-free but I will leave a space there, maybe in another 20 years” (p. 20).

Does today’s legal and regulatory structure permit wide deployment of such technology? Transporting and storing CO₂ presents legal and regulatory challenges, particularly since stored CO₂ can leak back into the atmosphere, migrate, interact

with minerals to contaminate ground water, and even kill people and animals in surrounding communities, should it escape in large quantities. While CO₂ is neither flammable nor explosive, according to Greenpeace, CO₂ is denser than air and tends to pool in low-lying, poorly ventilated areas posing a hazard to human health if it reaches concentration levels higher than 3% by volume” (Rochon, 12). For example, in 1986, a large amount of CO₂ that had accumulated at the bottom of Lake Nyosin in a volcanically active area in Cameroon, was released suddenly, “killing 1700 people and thousands of cattle over a range of 25 km. ” (Rochon, 30). Since the CO₂ would have to be stored forever in order to avoid creating global warming, and humans have no experience storing anything forever, issues of liability and regulation are paramount.

According to Ben Grumbles, EPA’s Assistant Administrator for Water, regulation of CO₂ sequestration comes under the Safe Drinking Water Act and is based “on what we know in using the Underground Injection Control program,” used with enhanced oil recovery (p. 33). Since no state in the U.S. “currently has experience with long-term large volume storage of CO₂,” and because of the “risks they present to underground sources of drinking water and public health,” Grumbles believes “that a combined approach, a Federal and State approach, working together using the regulatory tools under the Safe Drinking Water Act is the way to go” and is “essential in developing a cogent management framework for the long-term success of these promising but unproven technologies” (p. 37). In the combined approach, the EPA issues “overall guidance and regulatory framework” and then has a “process where States meet certain criteria and then are delegated the authority to run the program” (p. 38).

Texas has more experience storing carbon dioxide than any other state, as it has been injecting CO₂ into depleted oil wells to enhance oil production since 1973. Attorney Jay B. Stewart, who represents individuals and entities regarding oil and gas and injection activities before the Railroad Commission of Texas and the Texas Commission on Environmental Quality, said that, “Carbon sequestration intended to be permanent adds a significant new component to the legal analysis. Liability for the unlikely possibilities of release or migration of sequestered CO₂ that could occur well beyond the time frames that are occasioned by present operations should be evaluated” (pp. 51-52). Indeed, such long-term storage necessitates very careful evaluation of potential storage sites before

approval to sequester CO₂ is granted, said Stewart. In anticipation of Texas being awarded the FutureGen project (it instead went to Illinois), the legislature passed a law to transfer “the ownership of the CO₂ from the FutureGen facility to the State of Texas.” Since the goal of carbon sequestration must be permanent, “the permanence of the State is the only entity that can provide the necessary notice and monitoring beyond what one would expect in a private entity’s life span.” Further, “The State is protected by the principles of sovereign immunity while it cares for the injected CO₂, that is, by State law, its property and responsibility.” He also added “that many States including Texas through a task force of the Interstate Oil and Gas Compact Commission are very far long in developing a model legal and regulatory framework for the geologic storage of CO₂,” and that IOGCC hopes to publish this model framework within a year (p. 52). It is clear from Stewart’s testimony that power companies would be able to externalize the liability costs of sequestering CO₂, thus passing on the risks to taxpayers.

March 20, 2007 Statement on “Climate Change: Perspective of Utility CEOs”

This hearing focused on the perspectives of the electric utility industry to climate change legislation, with testimony from six chief executive officers of “some leading coal fired generators.” Again revealing his bias towards the coal industry, Boucher says, “As we draft a greenhouse gas control measure it is essential that we preserve the ability of electric utilities to utilize coal, our nation’s most affordable and abundant energy resource with a 250 year reserve.” He repeats the same arguments made in his March 7th statement involving the consequences of utilities switching to natural gas, driving up prices for the half of all US homes heated with natural gas, and the loss of manufacturing jobs to countries which have “lower and more stable natural gas prices,” and the strain on American industry which is “natural gas dependent and would suffer adversity if prices escalate.” Boucher reiterates his goal of “drafting a control program of economy wide application that does not dislocate any economic sector.” He asks the witnesses to give their views “regarding the potential for carbon capture and storage technologies to enable utilities to continue to rely on coal as the predominate fuel for electricity generation.”

Salient Points from the March 20, 2007 Hearing on Perspectives of Utility CEOs

While this hearing was not transcribed, the prepared testimonies are available on the website of the Committee on Energy and Commerce. Comments from Jackson (Jack) Reasor, President and CEO of Old Dominion Electric Cooperative, Glen Allen, Virginia, and Michael G. Morris Chairman, President, and Chief Executive Officer American Electric Power, reveal the range of opinion from different types of electric utilities.

Old Dominion Electric Cooperative (ODEC) is a not-for-profit wholesale electric supplier to 12 distribution cooperatives that own ODEC. It generates electricity from “a diversified fuel mix, including coal, nuclear, gas, oil, and renewable sources.” Like other electric cooperatives in the nation, it provides power “to some of the most rural, and some of the poorest, areas of the country” (Reasor, 3). Coops nationwide generate 80 percent of their electricity from coal because historically, it has been the “lowest-cost form of generation available,” according to Reasor (p. 8). His data indicate that “a mandatory greenhouse gas reduction program will have a disproportionate impact on rural electric cooperatives and our member-consumers” (p. 8). Reasor argues that in the short term, “terrestrial sequestration, conservation, and energy efficiency measures appear to offer the most cost-effective methods of mitigating greenhouse gas emissions, and those efforts should take priority and be recognized” (p. 10). He points out that, “equitable incentives must be provided to co-ops as well,” noting that in the past, “tax incentives have only benefited the for-profit segment of the electric utility industry” (p. 11).

In contrast to the not-for-profit cooperatives, such as ODEC, that serve primarily rural areas, American Electric Power is (AEP) “is one of the nation’s largest electricity generators with over 5 million retail consumers in 11 states. AEP has a diverse generating fleet – coal, nuclear, hydroelectric, gas, oil and wind. But of particular note, AEP is one of the largest coal-fired electricity generators in the U.S.” (Morris, 1). AEP’s CEO, Michael G. Morris, begins his testimony by citing the voluntary actions that AEP has taken to “to reduce, avoid or offset greenhouse gases (GHG) . . . by planting trees, adding wind power, increasing power plant generating efficiency, retiring less-efficient units among other measures” (Morris, 1). He also states that AEP continues “to invest in new clean coal technology that will enable AEP and our industry to meet the challenge of reducing GHG emissions

longer term. This includes plans to build two new integrated gasification combined cycle (IGCC) plants and two, state-of-the-art, ultra-supercritical plants. These will be the first of the new generation of ultra-supercritical plants in the U.S. AEP plans to take the lead role in commercializing carbon capture technology” (Morris, 1).

Despite this last statement about AEP’s plans to take the “lead role” in commercializing CCS technology, Morris points to a number of problems with CCS that argue against mandating it at this time:

Carbon capture and storage (CCS) should not be mandated until and unless it has been demonstrated to be effective, and the costs have significantly dropped so that it becomes commercially available on a widespread basis. Until that threshold is met, it would be technologically unrealistic and economically unacceptable to require the widespread installation of carbon capture equipment. The use of deep saline geologic formations as the primary long-term geologic formations for CO₂ storage has not yet been sufficiently demonstrated. There are no national standards for permitting such storage reservoirs; there are no widely accepted monitoring protocols. Underscoring these realities, industrial insurance companies point to a lack of scientific data on CO₂ storage as one reason they are disinclined to insure early projects. In a nutshell, the institutional infrastructure to support CO₂ storage does not yet exist and will require years to develop. In addition, application of today’s CO₂ capture technology would significantly increase the cost of an IGCC plant, calling into serious question regulatory approval for the costs of such a plant by state regulators. Further, recent studies sponsored by the Electric Power Research Institute (EPRI) suggest that application of today’s CO₂ capture technology would increase the cost of an IGCC plant by 20 to 50 percent, and boost the cost of a conventional pulverized coal plant by up to 75 percent, which would again jeopardize state regulatory approval for the costs of such plants. (Morris, 17)

In summarizing his stance on Greenhouse Gas Reduction legislation, Morris says that AEP advocates “a pragmatic approach for phasing in GHG reductions through a cap-and-trade program. The emissions cap should be reasonable and achievable [. . .] *Substantial GHG reductions should not be*

required until after the 2020 time frame [emphasis added]” (p. 9). It is clear from Morris’s testimony that as long as AEP continues to burn coal, it will not be able to substantially reduce greenhouse gas emissions quickly enough to avoid the tipping point in carbon dioxide emissions that scientists such as Hansen and Pachauri argue will arrive in 2012.

Carbon Capture and Storage Early Deployment Act

On June 12, 2008, Rick Boucher introduced a measure in the House of Representatives to accelerate the deployment of CCS technologies for petroleum, natural gas, and coal. The bill would allow utilities that burn fossil fuels to increase rates in order to fund a one billion dollar a year research corporation to conduct CCS research. Boucher estimates a \$10-12 rate increase per year per energy consumer. The new corporation would be a “division or affiliate of the Electric Power Research Institute (EPRI)” and would be managed by a Board of “not more than 12 members” appointed by EPRI that “and will include representatives of investor owned utilities, utilities owned by a federal or state agency or a municipality, rural electric cooperatives and fossil fuel producers.”

His floor statement frames the bill in much the same way that he framed the March 6 and March 20 hearings, but he adds a new and telling metaphor: “necessary first step.” He says, “The legislation I am introducing today represents a necessary first step toward the implementation of such a cap and trade system to address global climate change.” This metaphor serves to make CCS technology seem as though it is as basic as walking is to humans and part of an inevitable developmental process. The metaphor “first step” also implies that one will take subsequent steps, and that one will walk on a path to a destination to pursue a goal. Boucher makes clear exactly what his goal is, which corresponds to the personal goal of protecting the coal industry he revealed in the March 20 CCS hearing. He says in his floor statement, “The Carbon Capture and Storage Early Deployment Act addresses this clear need by enabling electric utilities that use coal to have the continued ability to do so when a mandatory program is implemented to control greenhouse gas emissions.” In the same paragraph, he adds, “The use of CCS technology will enable fossil fuel users to meet the reduction requirements of the measure while continuing to use coal, oil or natural gas.”

Nowhere in this floor statement or in his two other opening statements does Boucher consider whether the enormous amount of money necessary to

develop CCS to a widely deployable stage could be better spent on further development of renewable energy such as wind, solar, biomass, or geothermal. He falsely depicts natural gas as the only “fuel-switching” alternative to coal, when in fact a number of utilities are beginning to switch from coal to renewable sources.

Boucher also repeats the metaphor of “dislocation” and associates it with “deep economic pain” and the metaphor of “disruption,” and in the process appeals to fear in order to stimulate adoption of his CCS bill. In the following two paragraphs taken from his floor speech, I have placed in bold his adjectives and metaphors that create fear and urgency:

The legislation I am introducing today represents a **necessary first step** toward the implementation of such a cap and trade system to address global climate change. If **severe emissions reduction requirements** in a cap and trade system take effect before the carbon capture and storage technologies are available, the effect on coal fired utilities in particular would be **severe**. They would rapidly switch from coal to other fuels. Such fuel switching would significantly increase electricity prices to the **severe detriment** of both residential and industrial electricity consumers. Fuel switching from coal would most likely result in far greater uses of natural gas for electricity generation, **severely stressing** an already constrained natural gas supply and dramatically increasing natural gas prices.

Today, 58% of U.S. homes are heated with natural gas, and numerous industries are heavily reliant on it. If large scale switching by utilities from coal to natural gas occurs, tens of millions of Americans would experience **deep economic pain**, and many domestic industries, from fertilizer to chemicals would be **dislocated**. The early arrival of CCS is essential to prevent this **economic disruption** in a carbon constrained economy. (Boucher, 2008)

Conclusion: Is CCS a First Step or a Wrong Step?

This analysis of Congressman Rick Boucher’s hearings and bill on carbon capture and storage has larger implications for the future of effective climate change legislation in the U.S. His own statements of his personal interest in protecting utilities, the coal industry, and facilitating a growing use of coal as a fuel through CCS technology must be viewed against

the large campaign contributions he receives from these interests. Further, his stated goal to team the arrival of cap and trade legislation with deployment of CCS may be viewed as a delaying tactic for meaningful carbon control, since many experts, both in his hearings and elsewhere, argue that widespread deployment of CCS will not be possible before 2045, if then. It is ironic that a well-respected and powerful Democrat seems to be operating directly out of Frank Luntz’s playbook for conservatives who are opposed to environmental legislation. Luntz, a consultant who writes training manuals for conservative candidates, advises that conservatives can counter the efforts of global warming scientists that run counter to conservative positions by using “the words healthy, clean, and safe whenever possible, even when talking about coal plants or nuclear power plants,” writes Lakoff (2004, 22-23).

Does the data that emerges in the CCS hearings of March 6 and March 20 justify the early deployment act? It is easy to see the point in the March 6 hearing where Boucher draws the conclusion that greater funding of CCS research might speed up its deployment. When Mr. Shope, from EPA, states that CCS will not be widely deployed until 2045, Boucher responds that the time frame is longer than he had thought, and asks whether a larger budget would speed-up deployment. Although Shope replies that doubling their budget “could reduce the amount of time for that full deployment,” he did not specify by how much (pp. 13-14).

The evidence about CCS that emerges from both hearings suggests that there are many obstacles to be removed before CCS can be deployed at a scale that will significantly reduce CO₂ emissions. In its May 2008 report on CCS, “False Hope,” Greenpeace lead-author Emily Rochon writes, “The urgency of the climate crisis means solutions must be ready for large-scale deployment in the short-term. CCS simply cannot deliver in time. The technology is highly speculative, risky and unlikely to be technically feasible in the next twenty years. Letting CCS be used as a smokescreen for building new coal-fired power stations is unacceptable and irresponsible. ‘Capture ready’ coal plants pose a significant threat to the climate” (p. 8). Further, “While it is not even certain that we have the ability to capture and store the carbon dioxide necessary to implement wide-scale CCS technology, leakage remains a risk. If continuous leakage were to occur at rates as low as 1% per year, it could completely negate climate mitigation efforts,” says Rochon.

Rather than the CCS early deployment act being a “first step” toward cap and trade climate change legislation, it is a wrong step. The billion dollar a year price tag is money down a rat hole that could be better spent on developing renewable energies. Congressman Rick Boucher’s stated goal to represent the coal industry might be justified by some as the best way to protect jobs in the traditional coal counties in his district. Yet as the coal industry has become increasingly mechanized and has turned to the environmentally devastating practice of widespread mountain top removal mining, the number of jobs it creates has fallen dramatically. “In the United States alone, coal industry employment has fallen by half in the last 20 years, despite a one-third increase in production,” according to a World Watch Institute report (2008). Instead of continuing his support for an industry that is inherently dirty and polluting and has extracted great wealth from the region, while investing little of its profits in improving the well-being of the people who live there, Boucher and other elected officials should support renewable energy development. According to Worldwatch Senior Researcher Michael Renner, “renewables are poised to tackle our energy crisis and create millions of new jobs worldwide. Meanwhile, fossil fuel jobs are increasingly becoming fossils themselves, as coal mining communities and others worry about their livelihoods” (World Watch Institute).

Citizens should be aware of Boucher’s fear-inducing framing techniques that use words and metaphors such as “dislocating,” “unbearable,” “deep economic pain,” “suffer,” “severe detriment,” “economic disruption,” and “severely stressing.” They should heed the mounting evidence on the folly of CCS that is emerging from scientific studies. Rather than take Boucher’s “necessary first step” to invest in CCS technologies, citizens should proceed with caution and heed the words of Representative Hastert, who in the March 6 hearing said, “We cannot ask the American people to pay a heavy price in jobs and consumer costs in the name of solving global warming only to discover there is almost no environmental benefit” (p. 3). Congressman Boucher’s efforts to link CCS to cap and trade legislation reflect the current political economy of the United States that privileges the power of corporations over the power of citizens, enabling entrenched politicians and their lobbyists to protect carbon-emitting industries to the ultimate ruination of the environment.

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