

**TESTIMONY OF JAMES E. ROGERS  
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**BEFORE**

**SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE**

**JUNE 28, 2007**

Chairwoman Boxer, Ranking Member Inhofe and members of the Committee. Thank you for inviting me to share my thoughts with you this morning on how we as a nation should address the issue of global climate change. I believe this can be done with appropriate design of a comprehensive, long-term program that caps emissions, provides the right cost-control tools and supports the development, demonstration and deployment of new technologies. Both cost containment and technology development are critical if Congress is to craft and enact a workable climate change protection act.

For today's discussion, I want to focus on four very important aspects of a climate change policy – allowance allocations in a cap and trade program, carbon capture and sequestration, energy efficiency and, lastly, nuclear power generation. But before I get into the specifics, I believe there are some core principles we must keep in mind as we move forward on climate change legislation:

1. **Flexibility.** Legislation should recognize the successes of past environmental programs by enacting a cap that features flexibility through the inclusion of a tradable allowance market. But Congress must also recognize the need to contain

costs – especially to those living in areas of the country that rely on coal.

Congress should not penalize past fuel choices.

2. **Broad Coverage.** The program should apply economy-wide, resisting the urge to focus solely on the electric sector. A broad program is the most cost-effective approach and will set the country on a course of greenhouse-gas emission reductions. Programs that focus on only one sector will fail to reach emission reduction goals.
3. **Cost Containment.** Because a cap-and-trade program for greenhouse gas emissions will impact all sectors of the economy, we believe that, in order to alleviate concerns over implementation costs, the program should contain provisions that create an escalating allowance price cap or that cap the allowance price for a period of time.
4. **Meaningful reductions that track technology development.** It is important to start a cap now, and to gradually reduce that cap so that technologies have time to develop and deploy. Recognizing that it is difficult to set a course for 50 years or more, Congress should mandate periodic reviews to ensure that projected technology development and the cap trajectory are in sync.
5. **Customer Impacts.** Replacing our energy infrastructure will take time and money. We did not build it overnight, and we will not replace it overnight. Consumers should not be penalized for fuel choices that were made 40-plus years ago. Areas of the country facing the largest increases in electricity rates due to climate change policy also represent the nation's industrial heartland. How

allowances are allocated will directly impact the cost of electricity and the prices these consumers pay. We must get that right.

6. **Technology Innovation.** The program must actively support the development and deployment of low-carbon baseload generation technologies (including coal with carbon capture and sequestration). Widespread availability and deployment of such technologies will be key to managing GHG emissions in the power sector without disrupting the economy. This will require substantial near-term federal financial support – the carbon price signal will not by itself be able to drive the needed technology revolution quickly enough.
7. **Nuclear Expansion.** Climate change policy must address and remove barriers associated with nuclear energy production. We cannot meet our greenhouse gas reduction goals without expanding the role of nuclear in this country’s energy mix.
8. **Diversity in energy supply.** Congress must recognize that no single energy source will address the climate change challenge and at the same time meet growing demand. We will need all five fuels – nuclear, coal, natural gas, renewables and the “fifth fuel,” energy efficiency. We will need to use existing technologies as well as develop new ones on all fronts.

## **Duke Energy's role in the debate**

Duke Energy Corporation is one of the nation's largest generators of electricity. We serve nearly 4 million customers in North Carolina, South Carolina, Indiana, Ohio and Kentucky. Duke Energy has approximately 37,000 megawatts of generating capacity in the U.S., about half of that in coal-fired power plants. More importantly, in 2006 Duke Energy produced nearly 150 million megawatts-hours of electricity, 71 percent from our coal plants and 27 percent from our three nuclear plants in the Carolinas.

I am often asked why, as the CEO of the third-largest consumer of coal in the U.S., I am so outspoken on the need to address climate change through legislation. For several years now, I have been talking about the need to regulate greenhouse gas emissions. In my judgment, the science, as expressed by the Intergovernmental Panel on Climate Change and the National Academy of Science, is persuasive, and the call to action is compelling. This call to action led Duke Energy to join nearly two dozen other leading companies and environmental organizations to form the United States Climate Action Partnership (USCAP). The members of USCAP are united in calling on the government to enact federal legislation to limit greenhouse gas emissions, and we have developed a set of high-level recommendations for the design of such legislation.<sup>1</sup>

As the leader of an electric utility, my first obligation is to make sure that the lights come on when our customers flip a switch. And I don't mean to sound glib with that statement. Electric production and delivery require a complex network of power generation, transmission and distribution capability. Until we develop advanced storage technology

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<sup>1</sup> United States Climate Action Partnership, "A Call to Action" (January 2007).

we must generate electricity the instant it is required – constantly and simultaneously matching supply with demand. In addition, this discussion of climate policy is occurring as we are beginning a new building cycle, as well as investing significant dollars in controlling sulfur dioxide, nitrogen oxides and mercury emissions.

We are facing significant capital decisions based on increased energy demand, along with rising prices, environmental challenges and a national yearning for energy independence. There is no “silver bullet” that will address all of those concerns. It is our responsibility as electric utilities to balance four criteria in meeting our customers’ needs – to provide them with energy that is available, affordable, reliable and clean.

In striking that balance, it is critical that we understand the environmental expectations of those who regulate us. In short, we ask that Congress replace uncertainty with clarity, and carefully consider the needs of the environment, the economy and growing customer demand in crafting climate change policy. In the electricity sector, where capital investments are large and long-lived, clear signals on the approach to climate change are critical.

With the recent Supreme Court decision on climate, which makes the future of U.S. climate regulation even murkier, the need for certainty through Congressional action is more critical than it was just a few months ago. And I believe that providing that clarity, particularly in recognition of the immense capital costs associated with changing out our

current fleet of power plants to become a less carbon-intensive society, is one of the most important tasks that Congress will tackle in the months ahead.

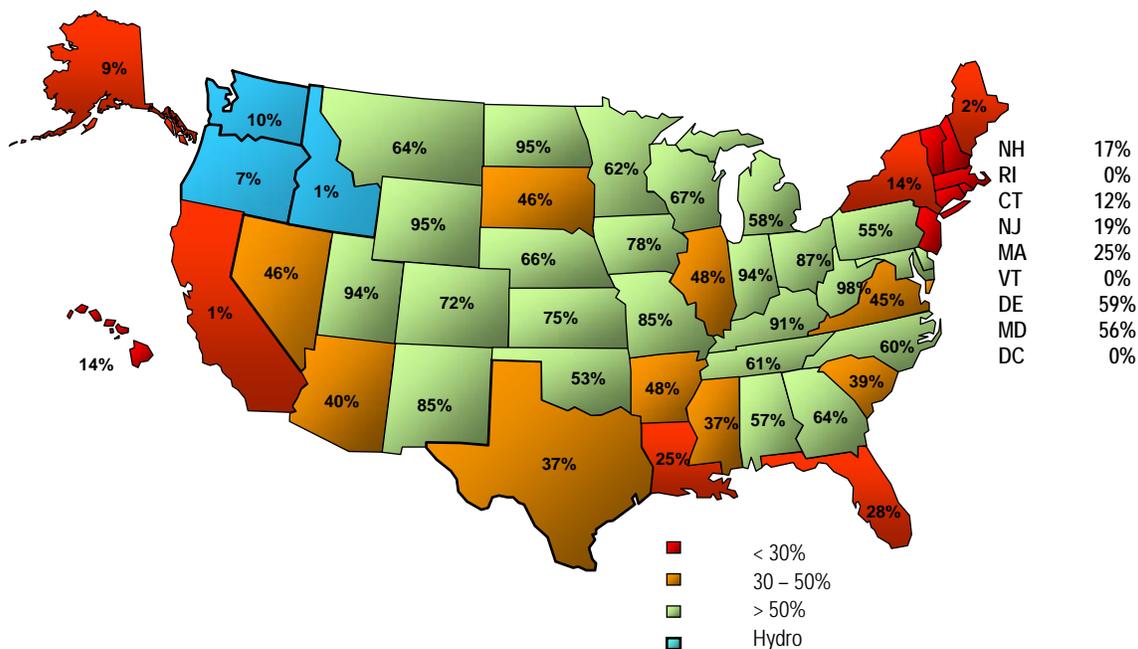
I believe the best way to accomplish that critical task is (1) to control greenhouse gas emissions through an economy-wide, market-based cap-and-trade program that utilizes a safety-valve price mechanism, (2) to support the development, demonstration and deployment of new technologies that will enable us to reduce greenhouse gas emissions over the long term, and (3) to remove barriers to the deployment of zero-emission nuclear energy. For our discussion today, I would like to emphasize a few specific items – an allowance allocation approach, carbon capture and sequestration challenges, energy efficiency incentives and the removal of barriers associated with nuclear power.

**Allowance allocations: a fair, effective and tested approach**

The more than 1,500 pulverized coal units in the U.S. today provide just under 336 gigawatts of generating capacity to consumers in 47 states. As reflected in the chart below, many states are highly dependent on coal generation, and the consumers in those states will bear the largest costs of climate change regulation. More than 50 percent of the electricity in 25 states comes from coal generation.

## Percent of Total Generation from Coal (2005)

**National Average: Coal Share of Total Generation = 50%**



Source: Energy Information Administration, November 2006.

Congress must recognize that this fuel mix cannot change overnight. Coal is the most abundant energy resource in this country, and historical decisions have led us to power half of our country with this natural resource. We will have to transition gradually to a less carbon-intensive economy, and consumers in these states should not be disproportionately impacted as we move forward.

Therefore, it is essential that Congress put forward a clear trajectory that allows companies time to invest and build. That means companies must be able to change out their current fleets in a time frame that does not stretch capital expenditures to a point

where Wall Street reacts by increasing capital costs and downgrading companies. In addition, customers must have time to absorb those huge capital expenditures. Even though utilities build power plants and depreciate them over a 30-year period, the massive transformation that climate change legislation will require will mean an impact on rates in the near and long term.

Much of the climate debate is centering on how an allowance to emit carbon dioxide will be allocated to companies. Under a cap-and trade program, for every ton of carbon that is emitted there must be an allowance surrendered. While the design of an allowance allocation system can be complex, we have the benefit of experience with the effective process that Congress put in place for the electric sector under the Clean Air Act Amendments of 1990. In fact, many of the members of this committee played an important role in that landmark legislation.<sup>2</sup> This successful approach provided for the granting of allowances based on the amount of emissions or heat input in a historical period. Some refer to this as an “input” based approach where the allocation of allowances is based on the average fuel-adjusted heat-input (or emissions) in a recent historical period.

Two primary issues have emerged regarding allowance allocations. Some have taken the position that all or most allowances should be auctioned rather than granted. Some also argue that the allowances for the electric power industry should be allocated based on the amount of energy or megawatt–hours being produced rather than the amount of emissions

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<sup>2</sup> More recently, EPA adopted a similar yet improved approach for allocating NOx allowances in the Clean Air Interstate Rule and for allocating mercury allowances in the Clean Air Mercury Rule.

or heat input. This is referred to as an “output” based approach. Both the significant auction<sup>3</sup> and output approaches are contrary to the methods Congress and the EPA have successfully used in the past to reduce emissions, and both should be avoided in climate change legislation.

I would like to take a moment to remind the Committee what allowances stood for when they were first adopted by Congress in 1990. Title IV, Section 403 (f) of the Clean Air Act Amendments of 1990 stated that “an allowance allocated under this title is a limited authorization to emit sulfur dioxide in accordance with the provisions of this title. Such allowance does not constitute a property right.” The Act makes it very clear that an allowance represents an emission. It does not represent cash for hedge funds or nuclear owners or investment bankers to play with. It is a method for tracking emissions and transferring permits when a company is able to more economically reduce emissions at one plant than at another.

According to recent testimony by career EPA staffer Brian McLean, Director of the Office of Atmospheric Programs, Office of Air and Radiation, before the House Energy and Commerce Committee, Subcommittee on Energy and Air Quality, March 29, 2007, “Emissions cap and trading is an alternative to traditional regulation and credit trading, not simply a trading feature added to existing regulation . . . . Individual source control requirements are not specified but each source must surrender allowances for compliance equal to its actual emissions.” Mr. McLean goes on to point out how effective the

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<sup>3</sup> Under the Clean Air Act, approximately 3% of the allowances were auctioned, primarily to assure liquidity of the emissions market.

program has been both in its simplicity, and in controlling costs of the program. He notes that the program resulted in earlier emission reductions than required and reduced compliance costs by more than two-thirds of initial EPA and industry estimates. And, finally, he points out that the method of distributing allowances is critical to the distribution of economic impacts and is therefore an important design feature. Putting a price on allowances directly increases compliance costs and the economic impact on consumers.

Again, several members of this committee played an important role in 1990 Clean Air Act landmark legislation and I ask you and the rest of the Committee to think about the important steps you took to reach an agreement to make historic reductions in air emissions. You have that same responsibility before you today. The way in which you design legislation will directly affect consumers and businesses in this country. I caution you to resist the call of those who would make this equally historic environmental legislation significantly more expensive than it has to be.

### **An auction approach removes the bridge to the future**

Any allocation approach should be viewed as a transitional program. It is simply a bridge to the point in time at which we can de-carbonize our economy. Keep in mind – our electric power system has been more than a century in the making – and we won't revamp it in a decade. But over time, advanced new technology will be the key to virtually de-carbonizing our country's energy system. As we approach that point, the granting of allowances can be phased out.

An auction approach takes away the bridge. It would disproportionately and unfairly burden those regions that are most dependent on coal – the Midwest, Southeast and Great Plains states. Forcing customers in the 25 states that currently depend on coal-fired generation for most of their electricity to bear the cost of buying allowances, while at the same time bearing the cost of replacing the existing carbon intense generation with lower carbon alternatives, would result in a double hit to those customers. That double hit simply is not equitable, and there is no reason to penalize those customers while rewarding hedge funds and others who would like to have a new commodity to play with. It serves no environmental purpose and that was never the purpose of emission permits in the first place. <sup>4</sup>

Using my company as an example may help to clarify the issue. Duke Energy’s customers depend on coal-fired generation for most of their electricity. Those plants were built decades ago, long before anyone raised carbon concerns. A carbon cap that becomes more stringent over time will require us to reduce the amount of carbon our plants emit. That will require us to build new, low- and non-emitting plants, and install carbon capture and sequestration technologies. Our customers will bear the burden of the cost to de-carbonize our generation fleet. And, because our current fleet is more carbon-intensive than those found in some other regions of the country, the costs to build and install this equipment will be proportionately higher than in areas that are less dependent on coal. Until new technology becomes available and new plants can be built, we have to

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<sup>4</sup> Thus, one of the key USCAP recommendations is that a significant portion of allowances should be initially distributed free to economic sectors particularly disadvantaged by the price effects of a cap. USCAP, “Call to Action,” at p. 8.

run our coal plants to meet the needs of our customers. To run those plants, we will need allowances. Again, requiring our customers to pay disproportionately higher fleet modernization costs, and at the same time pay the cost of allowances until the fleet can be de-carbonized, is an unfair double punch.<sup>5</sup> The rate shock to customers and the disproportionate damage to the economies in the 25 states that depend on coal are neither reasonable nor equitable.

### **An emissions-based allocation approach is fair and effective**

Allocating allowances using an average fuel-adjusted heat-input approach mitigates rate hikes and other associated costs that otherwise would be felt by the customers in states heavily dependent on coal. But it is important to note that this approach would not totally block the policy price signal from reaching the customer, as is sometimes claimed.

Rather, it dampens the rate impacts – rates will still increase owing to the fact that: (1) allowance prices will increase over time, (2) generators will change the order in which they dispatch their plants in response to market forces, and (3) generators will make very large investments in new low- and non-emitting plants, which show up in electricity prices one way or another.

Some suggest that a better approach is to allocate allowances on a total energy output basis (based on megawatt-hours produced). Allocating allowances on an output basis would do two things. First, it would provide firms which have significant non-emitting

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<sup>5</sup> The effect on customers of companies smaller than Duke Energy could be even worse. If Congress makes the decision to charge companies for the right to operate their current fleets of power plants, you will be greatly reducing the capital available to de-carbonize their fleets. For smaller companies, you may be removing that capability all together.

generation (nuclear and renewable) with a windfall gain. We understand this, because we own and operate a sizable nuclear fleet in the Carolinas. These assets will already be advantaged in the market under a cap-and-trade program, with no compliance obligation; they need no allocation. Second, it would take allowances away from coal-fired generation that would incur the greatest compliance cost, ultimately impacting the customers who depend on that coal generation. This would place a disproportionate share of the program's costs on states that are more heavily dependent on coal.

Suggestions that output-based allocations will encourage the deployment of non-emitting generation are without merit and miss the point of the allocations. What we're talking about here is the generation on the ground – existing assets that serve our nation's electric needs, powered by fuels and technologies that made the most economic sense at the time in accordance with our state regulations, and which cannot be shut down and replaced overnight. As in the Clean Air Act, which used an input-based approach, all new entrants must purchase allowances if they want to build plants that emit.

Accordingly, under both input- and output-based approaches, market forces and the cost of carbon apply equally to all new generation decisions. In the future, new technologies will be deployed because the changed regulatory environment and a rising carbon price signal will make them the most economic choices, regardless of how Congress allocates allowances to existing units.

In any event, we believe that Congress should make the decisions on allowance allocations and spell out the details in legislation, rather than leave those critical policy decisions to the discretion of an administrative agency. The allocation of allowances will have critical, multi-billion-dollar impacts on the distribution of compliance costs associated with a cap-and-trade program.

### **Encouraging and funding innovation**

As the door opens to what will become a carbon-constrained economy, we face a clear challenge. No technological solutions are available today to scrub carbon out of the flue gas or to generate large amounts of emission-free electricity from coal. Promising new technologies are being researched and developed, but right now no reliable technology is available that we can add to the back or front end of our coal plants to eliminate carbon dioxide emissions.

This has two implications for the nation's climate policy. First, before such technologies are widely available, a cap-and-trade program must be carefully calibrated so that allowance prices are high enough to pull technology off the shelf, but not so high as to be onerous. This requires careful attention to the trajectory of the emissions cap and safety valve – and a clear ability to adjust the trajectory of each, in response to technology developments.

Second, the prospect of future CO<sub>2</sub> allowance prices is not, by itself, a sufficient driver for developing technology quickly enough, and thus an affirmative technology policy

must be part of the larger climate change policy. One of the principal recommendations of USCAP is that a climate change program should couple a carbon price with a targeted set of policies to promote development and deployment of low-carbon technologies.<sup>6</sup> For carbon capture and sequestration, this means the development of a substantial and reliable source of funding for large-scale demonstration of technologies. I encourage Congress to closely review the long-term funding programs that help promote the development of IGCC, oxyfuel combustion and other advanced-coal technologies. You should look for research programs that can be combined and where efficiencies can be gained, as well as creative ways to further reduce risk taken on by utilities that are using new or emerging technologies.

### **Carbon capture**

Much work remains to develop the technologies for carbon capture, a technology still in its infancy when applied to utility operations. Ninety percent carbon capture, for instance, installed at a 600-megawatt IGCC plant, would consume about 13 percent of the net power output; installed at a 550-megawatt pulverized coal plant, it would consume approximately 30 percent of the net power output. Clearly, considerable work lies ahead to reduce those power requirements.

As importantly, we need as strong a commitment to develop technology that can capture carbon from our large fleet of already-existing coal plants. There are more than 1,500

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<sup>6</sup> USCAP, “Call to Action” at p. 7 (“[A]n effective climate change program must include policies to promote significant research, development and deployment of hyper-efficient end use technologies, low- or zero-GHG emitting technologies, and cost-effective carbon capture and storage, which will be particularly important in the deployment of advanced coal technologies.”); see also p. 9.

pulverized coal units in 47 states. Most of these plants are not yet near the end of their useful lives. Clearly, retrofit technologies must be developed to mitigate carbon emissions from these facilities. We cannot ignore these plants as we build the next generation of shiny new plants using advanced technologies. In my view, it is risky to place your bets on just one technology, which is why I believe we need to develop carbon capture technologies to keep these plants operating.

### **Carbon sequestration**

Carbon capture and storage (CCS) for coal-fired power plants is a critical technology if we are to achieve our environmental goals while continuing to use our abundant domestic coal resources. CCS captures the CO<sub>2</sub> from the power plant and channels it underground for permanent storage in deep geological formations. However, this storage capacity is not available everywhere and, contrary to some statements I've seen recently, the technology itself is not fully developed and ready for deployment.

We believe CCS ultimately will prove to be one of the least-cost ways to reduce CO<sub>2</sub>, and we are actively involved in projects to advance the research. Duke Energy is hosting a small-scale Phase II sequestration demonstration project at its East Bend power plant in Kentucky, which will involve injection of CO<sub>2</sub> into deep saline reservoirs in the area, between 3,000 and 4,000 feet below the surface. If the site is determined to be suitable, about 10,000 tons of CO<sub>2</sub> would be injected in 2008. The sequestration will be subject to monitoring, measurement and verification.

Duke Energy's commitment to CCS also includes membership in three DOE-funded carbon sequestration regional partnerships (the Midwest Regional Carbon Sequestration Partnership, the Midwest Geological Sequestration Consortium and the Southeast Regional Carbon Partnership) which are collecting, sharing and assessing data. DOE's National Energy Technology Laboratory (NETL) manages a number of regional sequestration consortia, creating a nationwide network to help identify the best technologies, regulations and infrastructure needed for carbon capture and storage. These partnerships will support multiple small-scale projects that will provide invaluable information on siting, monitoring, evaluation and public acceptability of carbon sequestration.

Expanded federal financial support will be necessary to continue the process of demonstrating geologic sequestration. USCAP has advocated that Congress fund at least three full-scale CO<sub>2</sub> injection demonstration projects, each at a scale equivalent to the CO<sub>2</sub> emissions produced by a large coal-fired power plant.<sup>7</sup> The MIT Future of Coal study calls for three to five demonstration projects at a projected cost of \$500 million to \$1 billion over eight years.<sup>8</sup>

In addition to proving the technology and geology for sequestration, a number of critical regulatory and legal issues will need to be resolved. As USCAP has stated, "Congress

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<sup>7</sup> USCAP, "Call to Action," at p. 9.

<sup>8</sup> Massachusetts Institute of Technology, "The Future of Coal: an Interdisciplinary MIT Study," (2007), at pp. 53-54, 97.

should require the EPA to promulgate regulations promptly to permit long-term geologic sequestration of carbon dioxide from stationary sources.”<sup>9</sup> In addition to developing an appropriate regulatory system that will specify the ground rules for sequestration projects and enhance public acceptability, Congress should also provide appropriate protections against costly litigation and liability claims. The potential for significant liability claims and litigation defense costs, even when facility operators comply with all regulatory requirements, will be a significant damper on the commercial development of sequestration facilities. Given the speed with which we will need to put sequestration capacity into operation, we cannot simply wait to see if the common law in each state develops in a way that acceptably moderates these liability and litigation risks. Instead, I expect that the legal and liability issues must be settled before any company will feel comfortable moving forward with a large-scale CCS project.

Finally, despite all the seeming activity described above, CCS development needs a much greater sense of urgency if we are truly to respond to the climate problem. To paraphrase an MIT economist who has looked at this problem – if CCS doesn’t work, we are in big, big trouble. I would characterize the current focus on CCS as something of a hobby. It should be an obsession, and receive a great deal more attention and resources.

### **Energy efficiency**

While the deployment of carbon capture and sequestration technologies and the buildout of new nuclear generation will take several years, we have other opportunities to reduce

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<sup>9</sup> *Id.* MIT’s Future of Coal report makes similar recommendations. MIT, “The Future of Coal,” at p. 98.

our carbon emissions in the short term. One of those opportunities is to revisit the way we as a nation think about and use energy.

Electric utilities have the expertise, the infrastructure, the customer relationships – and a responsibility as well – to make efficiency a significant part of the energy mix. We call it our “fifth fuel” – as important as coal, nuclear, natural gas and renewables in meeting our customers’ energy needs.

Energy-saving programs can range from simple on-site energy audits, to the use of sophisticated technologies to monitor and control customers’ own energy use.

The key for the success of these programs is to compensate utilities for meeting demand – whether we do that by producing electricity, or conserving it. As the fifth fuel, we believe energy efficiency should be treated like any other type of production.

Most state regulatory regimes include inherent disincentives for energy efficiency efforts. Some regulatory innovations, such as decoupling, are aimed at taking away disincentives, rather than creating incentives. We’re working to change that paradigm, by encouraging our regulators to allow utilities to earn a return on their investments in saving watts, just as they would for generating watts. This new paradigm would give us an incentive to fully develop all economically sound energy efficiency programs.

Taking variable costs such as fuel and emission costs into account, the energy efficiency model we are proposing produces a triple win – for customers, for companies and for the environment.

Last month we took the first step at Duke Energy. We filed our energy efficiency plan with the North Carolina Utilities Commission. This proposal is designed to help our customers conserve energy and reduce their power bills, without sacrificing comfort or convenience. New energy efficiency technologies are available now to help us do just that.

While state public service commissions must take the lead, Congress can encourage the states to review their ratemaking policies as they relate to energy efficiency. I encourage you to include such considerations in any climate or “pre-climate” legislation.

## **Nuclear**

It is imperative that we have multiple options for reducing greenhouse gas emissions. Energy efficiency plays a role and the importance of developing new technologies to capture and sequester carbon cannot be underestimated. However, there is no way this country will meet long-term emission reduction goals without nuclear power.

Expansion of our nuclear power generation will be critical to meeting our long-term emission reduction goals as well as maintaining our country’s diverse energy supply mix.

Today, 104 reactors produce 20 percent of U.S. electricity, and nuclear energy represents nearly three-quarters of all non-emitting electric generation. In the Carolinas, nuclear energy provided 47 percent of the electricity to Duke Energy's customers in 2006. By using nuclear energy instead of coal for a portion of our generation, Duke Energy has avoided the release of an estimated 1.1 billion tons of CO<sub>2</sub> since our three nuclear stations entered service.

In its recently issued report on strategies for addressing global warming, the Intergovernmental Panel on Climate Change emphasized that nuclear power is “an effective [greenhouse gas] mitigation option.”<sup>10</sup> The IPCC further determined that, to the extent that new nuclear plants could displace existing and planned fossil fuel-fired plants, “net CO<sub>2</sub> emissions could be lowered significantly.”<sup>11</sup>

It is vitally important that we keep our existing nuclear power fleet running, while adding new nuclear capacity. Accordingly, the federal government needs to meet its commitments and obligations, work to remove barriers towards expansion of nuclear power, and help build continued public confidence in nuclear energy and the management of nuclear waste.

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<sup>10</sup> Intergovernmental Panel on Climate Change, Working Group III Report: “Mitigation of Climate Change” (May 2007) (pre-copy edit version), available at [http://www.mnp.nl/ipcc/pages\\_media/AR4-chapters.html](http://www.mnp.nl/ipcc/pages_media/AR4-chapters.html), at p. 26.

<sup>11</sup> *Id.*, at p. 66.

To make this possible, we need new energy policies in the nuclear power area.<sup>12</sup>

Building new nuclear power assets involves major capital commitments. With every new nuclear power plant, however, the public gains a substantial amount of new, affordable, carbon-free power. Therefore, I would call on the government to follow through on establishing and implementing a workable loan guarantee program, as authorized in the Energy Policy Act of 2005, in order to lower the capital costs of bringing new nuclear generation on line.

New capital is not enough, however. We need to have a sound, stable, and certain regulatory environment for nuclear power. Most importantly, we need a system for handling used fuel and nuclear waste, one that we all can feel confident and secure about.

This means:

- **Establishing a credible management and governance structure that will be responsible and accountable for management of used fuel and high-level waste.** The federal government has missed one milestone after another, including its obligation to begin accepting used fuel by 1998. This has resulted in deterioration in the public's confidence in our ability to manage used fuel. We need a management and governance structure, modeled on private-sector principles, to strengthen accountability and to provide program management continuity.

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<sup>12</sup> The need for nuclear energy policies to promote greenhouse-gas emissions mitigation was also a conclusion of a major multidisciplinary study undertaken by MIT. See at MIT, "The Future of Nuclear Power: an Interdisciplinary MIT Study," (2003), at p. 88 ("Our position is that the prospect of global climate change from greenhouse gas emissions and the adverse consequences that flow from these emissions is the principal justification for government support of the nuclear energy option.")

- **Ensuring that there is adequate funding and resources to implement this structure, and providing for independent oversight of the collection and expenditures of funds.** To date, over \$28 billion has been committed to the Nuclear Waste Fund, with Duke Energy's customers contributing over \$1.2 billion of this amount. The status quo, where these monies continue to be collected, yet are used for other than their intended purposes, does not enhance public confidence in the government's ability to manage this program or these funds.
- **Authorizing the consideration of all feasible options for management of used fuel, including fuel recycling as an alternative to direct disposal or a companion strategy.** When used fuel is discharged from a reactor, it still contains a significant amount of recoverable energy value. Used-fuel recycling is not a new concept or technology – it is used by many countries including France and Japan as a means of recovering and reusing the remaining fissile content. Recycling needs to be further considered for the U.S. nuclear fuel cycle.
- **Providing statutory direction on the application of the National Environmental Policy Act (NEPA) as it applies to the licensing of new nuclear plants.** A NEPA review of environmental impacts of a potential terrorist attack on a nuclear power facility offers no benefit to such a facility's security – already fully addressed by NRC requirements – or the NRC's consideration of environmental concerns, as NRC regulations already require the agency and licensees to consider the environmental impacts of events that could result in releases of nuclear material or radiation. Clarification and reinforcement

of the roles of the various federal agencies (NRC, Office of Homeland Security, etc.) in the assessment of and preparations against potential terrorist attacks is needed to ensure individual licensing proceedings for nuclear facilities are not protracted over this issue.

Duke Energy believes that nuclear power is an indispensable resource for a clean energy future. Indeed, our company is moving forward with a major new investment in nuclear generation in South Carolina. However, it will take a credible and stable regulatory environment to make it possible for this country to achieve its low-carbon potential with new nuclear generation.

### **Comprehensive solutions needed**

In preparing our company to operate successfully under carbon caps, we have come to realize that there is no one-size-fits-all approach to reducing greenhouse gas emissions. It will take a suite of actions to lighten our nation's carbon footprint. As I've often said, "there is no silver bullet – just silver buckshot." Our industry will need to invest in coal with carbon capture and sequestration, nuclear, renewables and energy efficiency to tackle the climate challenge effectively and economically.

I am confident that Congress can structure climate legislation in a way that protects our economy, allows continued use of abundant domestic energy resources and leaves a better environment for our grandchildren. That legislation can and should be structured

in a manner that promotes innovation, encourages investment in new and emerging technologies, and fairly distributes the costs.

I am encouraged that this Committee has begun a thorough examination of this critical issue. I thank you for the opportunity to share my views, and I look forward to working with you.