

BALANCING ENERGY AND CLIMATE CHANGE IMPERATIVES

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WORLD COAL INSTITUTE MEETING
WASHINGTON, DC
JUNE 23, 2009**

Thank you very much. It is a pleasure to be here, and to be given the opportunity to kick off our discussion on the challenges and opportunities for U.S. Energy and Climate Change Policy.

I want to focus my remarks today on a small number of fundamental truths about climate change and energy and how we must address them.

U.S. Energy Secretary Steven Chu recently gave a commencement address at Harvard and in that address, he said: “For the first time in human history, science is now making predictions of how our actions will affect the world fifty or a hundred years from now.”

According to the Intergovernmental Panel on Climate Change, which includes thousands of top scientists from around the world, the earth is on track to warm by as much as 2 to 11.5 degrees Fahrenheit over the next century – that’s in addition to the 1.5 degree rise we have already experienced in the century gone by. As Secretary Chu pointed out at Harvard: a few-degree increase may not sound like much on any given day, but think about this: during the last ice age the Earth was only 11 degrees colder than it is now – the same amount of warming projected at the upper range for the end of this century.

Clearly, a few degrees can and will make an enormous difference.

Scientists also have reached a high level of consensus about what the temperature projections mean, and the federal report released last week, “Global Climate Change Impacts in the United States” confirms this. Whether it is increases in the number and intensity of rainstorms (in the northeastern United States heavy storms have become 67% heavier over the last century); or sea levels, which are already rising and are projected to rise from two to three feet along the Eastern seaboard of the United States, the risks to our health, environment and economy are huge.

So the first truth is that the science tells us we have an enormous problem on our hands. Climate change is real, and it poses very significant risks to life as we know it.

Fortunately, or perhaps unfortunately, depending on where you sit, we know what we need to do to address these risks. And this brings me to the second fundamental truth I want to cover today: Reducing the greenhouse gas emissions that result from the combustion of coal and other fossil fuels is a non-negotiable element in the solution to this problem.

This will not be easy and it will not be free, especially when you consider that even in these tough economic times, global demand for energy continues to grow. Right now, fossil fuels make up more than 80 percent of the global energy mix – with coal powering 41 percent of electricity generation. The Energy Information Administration projects world energy consumption under business-as-usual conditions will increase by 36 percent in the next 20 years. So by 2030, without significant policy changes, global energy-related carbon dioxide emissions will grow 32 percent.

So as I said, we must reduce these emissions, and that is non-negotiable.

The only way out of this box we have built through our reliance on fossil fuels is to quench the world's growing thirst for energy with technologies that produce little or no carbon dioxide. And this means that, ultimately the success of a climate change strategy—whether at the national or international level—will hinge on the development and deployment over time of a broad spectrum of technologies that will dramatically reduce the world's carbon output.

We are talking here about a fundamental transformation in how we create and consume energy – that includes changes in how we produce electricity, how much electricity we consume, how we transport ourselves from one place to another, how we farm and manage our forests, how we manufacture products, and how we build and operate our homes and buildings. We will need to throw everything we have at this – including the development and deployment of energy sources from solar and wind to nuclear power to technologies that reduce emissions from our use of oil, natural gas and, of course, coal.

And here's another truth: In order to get all the technologies we want and need, we can't just sit around and hope that somebody somewhere is advancing these technologies to a point where they can enter the marketplace and, presto, cut U.S. and global emissions by 20, 50 or 80 percent.

This will not happen on its own. We need national and global policies to make it happen.

So the question for today, and for those of you here at this meeting is this: what does all of this mean for coal? And, in answering this question I will offer another truth: there

will be no place for coal in a carbon-constrained world unless we can substantially reduce emissions from the use of coal as a power source.

Coal is responsible for 27 percent of U.S. greenhouse gas emissions. Worldwide, one-fourth of CO₂ emissions come from coal. Clearly, something has to give. In order for the world to get a handle on the climate problem, and in order for coal to hold onto its place as a major fuel source in the decades to come, we need to show – and very quickly – that it is possible to achieve substantial cuts in emissions from burning coal.

And since coal is the single largest source of both energy and carbon, it is our single largest nut to crack. If we don't figure it out, coal's role – as a percentage of our energy mix - will shrink - as surely as the ice caps.

Consider this: Currently in the US about 50% of our electricity is generated from the combustion of coal, approximately 20% comes from nuclear power, 8 from renewables (mostly hydro) and the remaining 22% comes from natural gas.

Can those numbers change? Of course. We are now witnessing a sea change in the natural gas industry brought on by advances in exploiting unconventional gas reserves. An expanding, affordable domestic natural gas supply could lead to a greater reliance on natural gas. Renewable energy is enjoying a surge in attention – both bills currently under consideration in Congress – Waxman-Markey in the House and the Bingaman energy bill in the Senate -- will mandate that renewables and efficiency savings meet 15 and 20%, respectively, of our electricity supply by the end of 2020. And finally, there are

4 new nuclear projects recently selected for federal loan guarantees, plus at last one new nuclear plant slated to be built in coal country.

At the moment, coal remains the most inexpensive and the most abundant energy source in the world. But when we get a price on carbon – and we will—coal’s fate will be tied to the fate of carbon capture and storage. If that technology works and is cost-competitive with other energy sources, coal can maintain and even increase its share of the electricity market. But if CCS does not work, then coal will lose market share. And over the long term, as the older, already paid-for coal plants are retired, coal use could see an absolute decline.

Because there is much uncertainty about future costs and technical viability, it is critically important to pursue a portfolio of low-carbon technologies: efficiency first of course, and all of the major low-carbon supply options including carbon capture and storage, renewables, nuclear power, and natural gas. And that’s also why it is critically important to enact a greenhouse gas cap-and-trade policy that provides utilities and other businesses with the flexibility to choose the most sensible, cost-effective approaches.

Carbon capture and storage is a great and promising concept. But the truth is it’s still a concept – not reality. We have been talking about CCS for a decade – debating how to manage costs, identifying possible storage sites, explaining the safety and legal issues. But all of this TALKING has amounted to actually DOING very little.

There's an old saying in politics: "When you are explaining, you are losing." And with CCS, it feels to me like we're still doing a lot of explaining!

The potential for CCS to reduce emissions is undeniable. Studies show that CCS technology could reduce CO₂ emissions from a coal-fueled power plant by as much as 90 percent. Modeling done by the International Energy Agency (IEA) forecasts that CCS could provide 20 percent of total global GHG emission reductions by 2050.

But these are just studies. They are merely estimates of what could happen if CCS finally emerges from the world of drawing boards and demonstration projects to actual widespread deployment throughout this country and around the world. What we are doing right now to develop these technologies is not enough; it's not even close to enough. We have two decades at most to deploy these technologies at the scale needed to achieve substantial reductions in emissions.

So what is stopping us? What is keeping us from doing what's needed to accelerate the development of this critical technology?

One thing that is stopping us is the lack of a price on carbon. This is yet another truth. The fact that there is no price on carbon means there is no incentive for businesses and industries to deploy CCS.

As all of you know, it costs money (and a considerable amount of it, too) to install CCS technologies at a coal-fired power plant, whether it's a new plant or a retrofit. And, without a price on carbon, and, I believe some additional requirements and/or incentives because the starting carbon price is likely to be too low, we simply won't see widespread deployment of CCS.

This is why the developments in Washington over the last several weeks are so important. Last month, the House Energy and Commerce Committee passed the American Clean Energy and Security Act, marking the first time that a serious climate bill has made it this far in the House.

The Waxman-Markey bill combines ambitious but achievable greenhouse gas emission reduction targets with a market-based cap-and-trade program. It is a good bill that protects consumers and provides the certainty businesses need to make substantial investments in clean energy technologies. We anticipate that this piece of legislation, which will be debated on the House floor beginning Friday, will be passed by the House this summer. Many of you know the details of the bill as it pertains to CCS better than I do, but here are a few highlights. In addition to placing a price on carbon, all new coal plants permitted after 2020 must use CCS from the start, and plants permitted between now and 2020 must incorporate CCS by 2025. Financial incentives are included in the bill to help overcome barriers to deployment. These include a trust fund for the first five commercial-scale CCS demonstration projects, and the use of so-called “bonus allowances” for early large-scale CCS deployment.

All of these provisions are largely in line with the recommendations of the U.S. Climate Action Partnership. USCAP, as most of you know, is a coalition of Fortune 500 companies, along with the Pew Center and other NGOs, that has become a powerful advocate for strong and swift action on climate change. USCAP has engaged CEOs from a diverse range of companies such as Alcoa, GE, Rio Tinto, Duke Energy, Shell and many others to become active and visible supporters of mandatory climate solutions.

One reason why the Waxman-Markey bill has attracted the support of so many business leaders is because of the need for certainty in how the federal government will regulate emissions in the years ahead. In a recent op-ed article in the Richmond Times-Dispatch, the CEOs of Dominion Resources, American Electric Power and Duke Energy praised the bill as a solid framework for action on this issue. They wrote: “Knowing how climate change will be addressed is essential to ensuring that we are making the best decisions on behalf of our consumers and the environment.”

Of course, the Senate is an entirely different matter. Majority Leader Harry Reid and Senator Barbara Boxer, who chairs the Environment and Public Works Committee, have made cap-and-trade legislation a priority for 2009. And last week, the Senate Energy and Natural Resources Committee approved a broad energy measure that among its many provisions includes a 15% national renewable electricity standard and liability protection for parties involved in federal CCS demonstration projects. But action in the Senate on a combined energy and cap-and-trade bill will be far more difficult than in the House, and while Senator Reid has said he hopes for a vote this year, it’s nowhere near certain this will happen. Although a bill can pass the House along partisan lines, this is not a possibility in the Senate. Sixty votes is a high hurdle, and bipartisan leadership will be needed. I also believe a bill can only move through the Senate if there is active engagement from the White House in mobilizing support from both Republican and Democratic senators.

But it’s hard to dispute the fact that serious climate legislation is on the move and that the United States will have a cap-and-trade policy in place before long – maybe not this year but likely in 2010.

If cap and trade is the law of the land, is it sufficient to move us to CCS? Here is an additional truth: it is *also* essential to combine the *policy pull* that cap-and-trade represents with an equally vigorous *policy push* for CCS and other clean energy technologies. Such a push will come from providing resources and incentives for the development and deployment of technologies we need – the RD&D support that’s needed to give these technologies a real shot in the arm, and a real chance at success.

The Waxman-Markey bill invests over \$190 billion through 2025 in clean energy and energy efficiency programs, including \$60 billion in carbon capture and sequestration technologies. The bill’s investments in clean energy continue after 2025, with 5 percent of allowances being devoted to renewable energy and energy efficiency, 5 percent to carbon capture and sequestration, and 1.5 percent to research and development.

So I believe we are moving forward in the United States, slowly, but with a clear eye toward a new clean energy future.

But the final truth I want to touch on today is the fact that domestic action on this issue – by the United States or any other country – is not enough. It is imperative to combine strong domestic action to reduce emissions from coal and other sources with strong action at the international level. We need a global framework – one that commits all major emitting countries to taking strong action to reduce their emissions.

In December, negotiators will meet in Copenhagen to try and reach agreement on a new international accord on climate change. Many challenges and many questions stand in the way of final agreement: What level of binding targets are appropriate for the United States and other developed countries as they set out to reduce their emissions? What’s the

best way to ensure that developing countries like China and India are doing their part, especially considering their huge reliance on coal to fuel development and growth? How can we make certain that developing countries have the resources they need to invest in clean energy and other emissions-reducing technologies?

These are not easy questions. Answering them in a way that yields real progress toward an effective international climate agreement will take perseverance and a lot of hard work. And I think it's important to be realistic going into the Copenhagen meeting that there is little chance of resolving every outstanding issue this year. The true test of success will be further progress in Copenhagen on some of the key questions I have raised.

We also need to work on a one-on-one basis with China. Together, the United States and China account for about 40 percent of global greenhouse gas emissions. No international agreement is possible without an understanding between these two countries on what is possible, what is practical, and what each country is willing to agree to in a binding international agreement. But beyond the agreement, we also need to work with China on the development and deployment of key technologies. A recent report from the Pew Center, in cooperation with the Asia Society, identified five priorities for U.S.-China cooperation on energy and climate change, starting with joint efforts to develop and deploy new technologies for reducing emissions from the combustion of coal. And China may actually be getting ahead of us - they already have three CCS demonstration projects under way, including a commercial-scale IGCC plant with CCS. This activity underscores two points: one, China will burn coal, and therefore it is essential that we

figure out how to capture and sequester carbon. And two, China has enormous potential for helping expand CCS deployment worldwide.

So these are the truths I want to share with you today: that climate change is real, that coal is a big part of the problem and must be a big part of the solution as well, that addressing this problem effectively will require policies that push and pull technologies like CCS to the market, and that domestic action must be accompanied by action at the global level.

A lot of good things are happening right now to finally start us down the path to controlling and ultimately reducing emissions from the use of coal and other fossil fuels. But we still have a lot of work to do. And the work we do in the weeks and months ahead will determine the future not just of your industry but also of our entire economy and the global climate.

Thank you very much.