

**Remarks of J. Wayne Leonard
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Post-Combustion Carbon Capture Forum
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I would like to thank the Bipartisan Policy Center for hosting today's event. The BPC plays a valuable role in bringing like-minded people together on many issues in a bipartisan fashion, and I am honored to be part of this program today.

I want to thank Senator Lisa Murkowski, the ranking member of the Senate Committee on Energy and Natural Resources, and Senate Agriculture Committee Chairman Blanche Lincoln, for hosting today's event, and for their extraordinary leadership on the Energy Committee on this issue, among others. I have gotten to know both Chairman Lincoln and Senator Murkowski better over the last two years as we have worked together for solutions to bring about a cleaner environment. We appreciate all the time that both of these senators have spent on energy issues.

The last few years haven't been the finest hours in business. We have violated the public trust in too many instances and too many ways to recount here.

While the failures in the most basic process obligations and responsibilities don't reflect the way the vast majority of people do business, nonetheless, it doesn't inspire confidence in any of our stakeholders.

William James said, "Truth lives off the credit system" and everything we say or do is now more suspect than any time in modern history. The unfortunate truth is we know better and we are better than that. Now we must prove it in everything we do.

Dr. David Victor, an environmental policy expert, recently observed in international relations credibility is our most important asset. When it comes to climate change and controlling greenhouse gases (just like business), we have drained decades of credits built up by previous generations.

Nonetheless, we are still the world leader, however you look at it. The greatest resources. The finest educational institutions. A nation with the most opportunities, freedoms and equalities.

A nation that respects the truth. The rights of others. A nation of laws.

But when it comes to climate change, we are guilty of some revisionist history. Kind of a "Wicked" Wizard of Oz sort of spin. Arguing that the developing world is the real problem in CO₂ or they should act before we do. We know better and we are better than that.

And I don't say that to point the finger at Congress for delaying action. If anything, business must take a fair share of responsibility for not acting on our own, putting half-truths in the minds of the public and our political leaders.

And for creating an environment that makes it more and more difficult for our leaders to vote their conscience by demonizing things like cap and trade; knowing full well other alternatives to cap and trade, like command and control or taxing CO₂, have little chance of garnering support and in some cases would not be nearly as effective as cap and trade.

Some say we can't afford this, but this is about an investment. The investment in mitigation or reduced greenhouse gases on the front end pays back many times in avoided costs for clean-up and adaptation later on.

No one in business would pass on that type of return on investment. Some say we can't be certain, so we shouldn't act. But that's kind of the point.

Having said that, we do know many things are virtually certain and I can't think of an issue that has been studied by so many with so much expertise. Man's activities are responsible for climate change, and it is not just theory or models anymore.

Unfortunately climate change is like some fatal diseases. If you don't catch it before the pain and symptoms are noticeable, you're in real trouble.

We will never have absolute certainty ahead of time about the longer-term effects of our actions. But the unambiguous signs of ongoing climate change around us are growing in number.

In our lifetimes it has been predicted there will be no glaciers in Glacier Park and a loss of many maples in New England.

Ice sheets are already starting to break up in Greenland and the Antarctic. The North Pole is now navigable by sea in the summer. Delay is not an option.

For example, some studies say 50 percent of all species are at risk of extinction. What we don't know is if man will be one of the casualties.

We condemn Wall Street for taking risks that put the whole economy at risk.

But we are putting all species and the whole climate at great risk every day without any potential upside. We are violating the most basic principles of risk management.

The words "we" and "us" are used a lot in this debate. But this is not about us. It's about our children, their children. From the moment they are born we know we will --we would -- give our life for them.

But for some reason we won't act on climate change. We're stealing their future and – worse -- we're doing it with our eyes wide open. At least, given the overwhelming and mounting evidence, that is how history will judge us.

Averting this catastrophic risk is a moral responsibility that cannot be sidestepped or finessed. If I were a CEO of a company facing this type of risk, I would have a clear fiduciary duty to take steps to mitigate it. As citizens and leaders, we have no less a fiduciary duty to future generations. The time to act is now.

At Entergy, in studying our cost curve to reduce greenhouse gases, we found little that we could do that was as economic as simply buying allowances. Our analyses suggested that most, if not all, utilities were likely to face the same basic economics - - meaning we could put a cap-and-trade bill in place but emissions were unlikely to go down and very little Research Development Demonstration and Deployment would take place to drive the cost of reductions down over time.

Based on the data, our hypothesis was finding a way to remove CO₂ from the exhaust stacks of conventional coal plants -- at a cost that is 1) politically acceptable in the U.S., and 2) economically doable in the developing world -- is absolutely essential to achieving the sustainability of real emission reductions.

Stating the obvious, over 80 percent of electric sector emissions are from coal plants. The cost of abandoning those plants and replacing them with new, clean baseload generation would be painfully expensive for the U.S., but cruel and unusual punishment for the developing world. Their conventional coal fleet is already larger than ours and far newer and is critical to meeting their basic survival needs such as food and clean water.

With these depressing facts in mind, we turned to MIT and co-sponsored a study to determine the current state of carbon capture and sequestration technology. The study focused exclusively on technology for conventional coal plants – the kind that could be retrofitted onto existing coal plants here and abroad. You will hear more about this study today, but it estimated that up to three-fifths of the coal-fired generating capacity in the United States is a candidate for retrofit technology.

Meaning, we would cut the carbon emissions of the U.S. power sector by half with this one technology alone.

Here, I'd like to recognize Senator Dorgan and his staff. Upon being briefed on the MIT report, they immediately sought to fund the recommended first step from the report, which is an inventory of the US coal fleet to determine which would be eligible for retrofit. This is a more complicated study than it sounds, and now this critical first step, through their efforts, will be off and running very soon. Of course, that's only the beginning. The annual carbon emissions from the electricity sector in China are already larger than those of the U.S. In less than five or six years they will

be double ours. Many of the opponents of action on climate change argue China is the problem, and they say that climate policy is not only ill-advised but a fool's errand that will go unreciprocated by the world's emerging economies. We have higher ground in New Orleans than the ground they are standing on in that debate.

The truth is that the climate problem was not created by the developing world. It was created by the industrialized nations. And while all nations must ultimately bear the burden of stabilizing the carbon concentration in the atmosphere, the industrialized nations must show leadership and commitment by taking the first steps, Senator Dorgan's actions being among those. Even if the U.S. adopts stringent climate legislation, the U.S. per capita CO₂ emissions are projected to still be over two times the per capita level of Chinese emissions by 2020. The developing world is right to question our credibility or sincerity when we point the finger at them.

Two out of every five children under the age of five in India are undernourished. While poverty in China has been dramatically reduced, over a hundred million people there still live on less than two dollars a day.

We are the world's moral leader. While we have our flaws, we are a humane society. It has taken us 200 years to get here. We cannot just demand civilization as we define it pop up around the world.

We have to help create it. We've used our military might for that purpose in the past. Now, we must lead through demonstrated self-discipline and by creating a just but compassionate plan for developing economies.

I know what you're thinking. We already have huge trade deficits with China. Why cut them any slack at all? Among other reasons, the bottom line is we can't save ourselves without saving the rest of the world. As someone said, "we are a crowded planet sharing a common fate" – that is, unless we do something about it. The U.S. is responsible, it is accountable, and it is capable.

Indications are that China and the other emerging economies are prepared to respond to that kind of leadership. In fact, this summer China announced that it was prepared to cap emissions in the year 2050.

We all want that cap to come sooner, but the acknowledgment by the Chinese that a cap is essential is quite significant. Even more important, are the actions they are already taking. For example, the Chinese intend to raise their annual production capacity to 500,000 hybrid or all-electric cars and buses by the end of 2011. They are planning to produce 12 million tons of biofuels by 2020, 15 percent of their transportation fuel supply.

They are pushing the limits of new nuclear development more aggressively than any nation in history. Among their "mandatory aspirations" are a 20 percent plus improvement in efficiency. They have already shut down 54,000 MW of old,

inefficient generating capacity in a capacity-short country. But regardless how their renewables and nuclear technology develops, for decades to come they will have a huge conventional coal fleet, far larger than ours.

Coal is a fuel of choice throughout the developing world. It's cheap, the technology is proven, and the labor to construct the plants is both cheap and abundant. As much as China is doing to keep emissions down, the size of their economy and their growth rate is so big we still need more help from them. It would be "a fool's errand" to simply demand they stop using coal given their current standard of living and already low per capita emissions. We will get their attention only when we commit to act ourselves and get the technology and economics right for carbon capture and sequestration. Not only will that solve our problem, but theirs as well. In fact, the situation in the U.S. parallels that of China. And that makes saving the world a by-product of saving ourselves, instead of a mission in and of itself.

In China, coal-fired generating capacity is cheap because it's new. In the U.S., it's cheap because it's old – there are many such plants that are in operation because they were paid for long ago and now only require cash outlay for operations and maintenance expenditures to keep them running.

I want to be very clear about our point of view on that. Wind energy, biomass, photovoltaics, and a host of other existing new technologies are the future. The question is whether they will always be the future, or whether their time will arrive sooner or later. Regardless, that is a question for the market to decide. This is one of the reasons it is important to put a realistic price on carbon as soon as possible. In contrast, the here-and-now is dominated by coal – it is the elephant in the room. What we must concern ourselves with is the technology that the market has already picked. The 2 million megawatts of coal-fired capacity by 2020. It's a greenhouse gas nightmare and it isn't going anywhere.

The future may hold technological surprises and magnificent solutions to the problem of providing energy without disrupting the world's climate. But the battle on catastrophic climate change will be won or lost in the nearer term, on how we manage the issue of coal. We simply must find an economic way to capture and sequester the carbon dioxide that's emitted in the coal-combustion process, much as we have become highly proficient at flue gas de-sulphurization with cost about one half what it was when it was first introduced.

As the MIT report stated, and I use their words, "there is no credible pathway" to climate stabilization other than developing and implementing this technology. The time to act is now. But as a country we are far behind where we need to be on CCS. Industry has done very little (in part because the price signal was zero).

The federal government has paid relatively little attention to retrofit coal technology. (In part due to the fact the industry has convinced them it's impractical.) Remember the key is retrofit – technology that can go on the back end of existing

conventional plants. Front-end technologies like coal gasification simply don't solve the problem with existing plants. When you examine who is leading in this area, too often the answer is other countries. There are plans for full commercial-scale projects in Norway, in Germany, and in the U.K. The European Union is already working cooperatively with the Chinese to build a full scale facility to test carbon capture and storage technology. By delaying the passage of a climate bill, we are ceding an important industry of the future to our competitors.

Worse yet, done poorly, I fear we could end up on a course to cede world moral leadership. We have little margin for error. As the only military superpower, it is critical our motives not only be pure but are perceived as that.

Climate change is the biggest moral issue our generation has faced and possibly the greatest threat to mankind in history. It crosses political, national and generational boundaries. It forces us to ask the question, "Are we more important than future generations?"

Dante reserved the lowest levels of Hell for those that violated a special fiduciary obligation to others. Murderers were actually given a lesser sentence. Of course, that's getting ahead of ourselves. The question isn't what happens after we die, it's what are we going to do until that day comes. The world is waiting on our answer.