Climate Change: Science and Solutions – The Case for Business Leadership

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Karim, thank you very much. [Karim Ahmed, NCSE Board Secretary and Treasurer] I am delighted to be here this morning. This is a great honor for me, to have an opportunity to talk to you about one of the most challenging ecological crises our planet has ever faced.

I want to start my conversation with you this morning with three numbers. These are three numbers you need to know about me. The numbers are 3, 12, 41.

Three – we are the third largest emitter among corporations in America of CO_2, because of our heavy dependency on coal to generate electricity across this country.

Twelve – among all the companies in the world, we are the 12th largest emitter of CO_2.

Forty-one – if you took the 192 countries in the United Nations, and we were a country, we would rank No. 41 with respect to our emissions of CO_2.

I share these numbers with you not to brag about them, of course. I share these numbers with you to give you a sense of the special responsibility that I have – the daunting job that is in front of me. And for you to have an understanding of why I have such passion about addressing this issue, and doing it in a way that we can get it right for now, and get it right for the future.

We must find a vision that motivates all of us and all the people in the world. We must find a way forward. We must find a way to lead on this issue.

I have a sense of urgency about this. I recognize the importance of acting now, but I also recognize the importance of having an expansive view about the possibilities. We oftentimes get into tough thorny issues like this, and we find ourselves constraining our thinking and pessimistic about the possibilities, because it seems so daunting, so large, so difficult. But I think real progress has happened in the world where people have confidence, they have determination, they have belief – and to me, this ecological crisis requires us to make a transition to a clean-energy economy.

We need to recognize at the outset that we have many barriers to overcome, but as humans, through 5,000 generations, we have overcome many barriers to be where we are today. I think this is yet another barrier that we have the capability to overcome. It is with that sense of mission that I want to talk to you today.

If I were going to tick off a list of things to do – and I want to start the conversation by talking about what I believe needs to get done – first and foremost, we need to develop funding and implement new technologies. This may be the most important key to building a bridge to a low-carbon world.

I also believe that a tremendous amount of work has been done with respect to the science, and I applaud you for that work, for your commitment – because fact-based science allows us to make good decisions about the future, and allows people like me to come up with the right conclusions. I defer to you with respect to the science, and it is your work that is going to be the predicate for what I try to achieve with respect to the solutions – at least with respect to the challenges that I have. So we need to develop funding and implementation of technology that is grounded in good science.

We need to build a consensus on regulatory and legislative solutions, not only within the United States – where much work needs to be done – but also around the world, because this is an issue that will require involvement by everyone.

We also need to make sure – and this would be my third principle –we need to ensure that these solutions do not unfairly penalize any one group of people, industry or regions around the world. We need to do that within the United States, and we need to do it around the world. Let me make an observation, and I will talk more about this in a moment. In the same way it would be unrealistic to think that we are going to come up with a solution that reduces the gross domestic product or the standard of living per capita in our country, it is equally unrealistic to think that we have the moral authority to deny electricity and the modern way of life to 1.6 billion people around the world – many in India and many in China – who do not have access to that; to think that somehow we are going to keep them from having a GDP per capita similar to what we have today. In a sense, I am framing the challenge, from a political standpoint and from a moral standpoint, with respect to addressing this ecological crisis.

It is also going to require us to make significant investments in energy infrastructure. From the power business perspective, in the United States we represent about 40 percent of the emissions of CO_2. The transportation industry is about 30 percent. In our industry, if we can get it right and if we have the right vision about plug-in hybrids in the future, we will see the decarbonization of our supply and subsequently plug-in hybrids fueled by this decarbonized supply. I can begin to see the outline of a society where we have decarbonized our economy. Keep that vision in the back of your head as I talk through this.

It is going to take significant investment. It is going to take a vision, and we need to engage in what I call the politics of possibilities, not the politics of limitations. This is about finding a better way. This is not about going back to the way the world was before or reducing our GDP per capita. This is not about denying the Chinese or the Indians, who have a right to the same standard of living that we have. Let that music play in the background as I talk about how one company is approaching it. It is critical that we address this problem for the future, but we need to recognize the challenges.

I know yesterday from talking to some of you that you talk about both mitigation and adaptation. There was a period in our history where we thought we could avoid this crisis through mitigation. I think we have passed that point. I think we are at a place now where we need to have strategies with respect to mitigation, but also strategies for adaptation. Just look at how the Chinese in the next eight years will build 800,000 megawatts of coal-fired plants. Even if we shut down every coal plant in this country, that would not solve the problem – even though it would cripple our economy, because 50 percent of the electricity in this country comes from the burning of coal – that is a fact.

The reality is we need to have strategies that do both, and the complexity of this issue is further compounded by the fact that as the climate and as the earth warm, it has different impacts on different parts of the country. Some of them are more negative, some are more positive, but it has different impacts which have other consequences. I do not think the recognition that we are in a world of both mitigation and adaptation is an argument to go slow. I think it is an argument to go fast, and to act now. So, as we think about this, we need to be crafting strategies that do both.

Karim pointed out that I have been a CEO for 19 years. Now, that is a certain kind [of achievement] – overcoming a few barriers and surviving, when the average tenure of a CEO is six years. So I feel fortunate, but I do have this recognition: I am judged every day when customers throw a switch, with respect to the reliability of the product that I deliver. They expect it to be there when the switch is thrown. I am judged every month when people pay their bills. Is it affordable? I am judged every quarter and every year by investors. Am I giving them good returns? Am I accountable to them? Am I a good steward of their investment?

But the greatest judgment of what I do is coming in the future. I have seven grandchildren, as was mentioned earlier. I call it "the grandchildren's test." They will judge me someday. When my grandchildren are my age, they will look back and say well, my granddaddy – he had this issue, this ecological crisis. He had three numbers – 3, 12 and 41. What did he do? What action did he take? Did he walk the talk? Did he actually deliver? Are his decisions as good today as he thought they were then? To me, that is the test that all of us in this room will have as we go forward, because this issue affects future generations and our way of life.

Let me quickly look in the rearview mirror. That is not always a good way to navigate the road, looking in the rearview mirror, but I think it is very important to take a look at where we have been in our country – a very quick look. If you look back, in the past 25 years our economy has grown. The GDP per capita has grown pretty dramatically. We have had productivity gains in the use of energy. We have reduced our carbon intensity and improved energy efficiency based on a per capita GDP number. We are using 40 percent less energy and 49 percent less oil today to produce each dollar of GDP than we did in 1975. Our carbon intensity has actually improved

faster than our energy use. That is due primarily, in the '90s, to the nuclear plants going from 70 percent load factors to 90 percent, and the amount of gas-fired generation that we built in this country.

You look back over this 25-year period, and what you see is we had a 3 percent increase in energy productivity each year. Part of it was due to how our economy has restructured and grown, and [how industry] evolved from being very energy-intensive. During this period of time, the price of electricity over a 15-year period has actually come down in real terms. Some would say this undermines energy efficiency efforts, because as the price comes down, people do not have the elasticity at work – price elasticity, in terms of reducing demand.

I share that with you to say – we did all that without a national policy. We did all that without any sense of urgency. We did all that just because it was the right technological answer. Imagine with me what we could have done over the past 25 years if this would have been front and center – if this would have been our national policy, and we were really focused on reducing our carbon and reducing our energy use to fuel our economy.

So I say yes – the rearview mirror shows some progress, but I see in the future, on the road ahead, much greater progress. I think we need to turn our attention to our No. 1 aspiration, and that should be to decarbonize our energy supply in this country. We can do that. I think our second aspiration should be to have the most energy-efficient economy in the world. And guess what? I would like to call for an arms race on energy efficiency. Let's have a competition among the countries of the world. The Japanese lead today. We are behind. We have work to do, and what we ought to do is have this competition to see who can develop the most energy- efficient economy. I really believe that is the key to moving forward.

Let me quickly turn and talk to you about what one company has done, and I am going to do this in a "pony express" kind of way. I want you to have a feeling for how we are approaching this, with the three numbers – 3, 12 and 41 – playing in the background.

First of all, we have been clear about our policy objectives, and I shared them with you with respect to our aspirations on decarbonization and energy efficiency. Within our company, we are looking at how much we can decarbonize our business by 2030 or 2050. Can we hit the aggressive targets of 60 to 80 percent reduction? We think we can by 2050. We think we can reduce it significantly by 2030, but we also at the same time ask – will it be affordable? If you take the cost constraint out, that gives you one answer, and we have tried to think forward about how best to do that.

Let me quickly tell you what we have done. Again, this is not to brag about what one company has done, because there are a lot of other companies that have joined us – leaders like Peter Darbee at Pacific Gas and Electric in California, leaders like Jeff Sterba of Public Service New Mexico, John Rowe at Exelon, Lew Hay at FP&L in Florida. So there are a number within our industry that are stepping forward and addressing this issue.

This time last year we joined a group of companies and NGOs – think how unique that is, to combine NGOs with top-50 corporations in America, to join together as what is called USCAP. We noticed that the government was not making real progress on this issue, and we called them to action. We said – we need action on this important issue. There are great uncertainties in the future. It needs to be addressed now, and delaying further is not a good thing.

That was about a year ago, and we continue to work and add [members]. We started with four NGOs, and now we have seven; we started with 12 companies, and now we have 40 – a larger and larger group calling for action, and calling for action now.

We joined with a group called CCC, an international group – in recognition that this is not just a U.S. corporate problem; this is a worldwide problem – to look for solutions with other companies around the world.

Then, in the Clinton Global Initiative last year, I had the honor of pulling together eight companies who made a commitment to spend $1.5 billion to invest in energy efficiency going forward, and to establish here in Washington the Institute for Electric Efficiency, so we can mine the best practices from around the country and around the world – to share these ideas, to convene and bring people together so that they can learn how to implement energy efficiency initiatives in a way that is cost-effective and produces real results. I will talk more about that in a moment.

I have worked hard as co-chair of the National Action Plan on Energy Efficiency. I sat through some of these meetings saying, what in the world am I doing? This is so boring – listening to what every state has done and what every company has done! But as I came through that process, it was transformative for me because I gained insights in terms of not just what has been done but probably more importantly, what has not been done. It gave me new energy and a sense that I needed to do more. As a consequence, we came up with an idea called save-a-watt. We are in the process of implementing it in the five states we operate in.

It is a total paradigm change. Tom Friedman in one of his columns called it “the mother of all energy paradigm shifts.” He has raised the bar so high for me, that if this thing does not deliver, it is going to be an embarrassment! But we do need to “raise the bar” to challenge ourselves to do things we have not done before.

It is fundamentally different than the old kind of energy efficiency. Remember Jimmy Carter sitting in front of a fire … (I look in the room, and I see many of you will not remember that – I am happy to see there are some like me who remember it!) … sitting in front of the fireplace and asking Americans to sacrifice. We are not a culture of sacrifice. We need to find energy efficiency approaches that are as seamless as electricity so that as we are implementing them, we still maintain comfort and convenience, but we are doing it in the most energy-efficient way going forward. That is the promise of save-a-watt.

It would change our regulatory model so that we are incented to reduce a megawatt of demand in the same way we are incented to build a new power plant and produce a megawatt. I believe that, at the end of the day, the most environmentally benign power plant I build is the one that I do not build. This save-a-watt program really underpins my capability to do that. At the same time that we are working hard on energy efficiency and calling for action, at the end of the day Job One for me is to provide reliable, affordable power to my customers. I have done some things that people ask – what is the world is he thinking? How can he be such an advocate for energy efficiency? How can he be such an advocate for carbon regulation in addressing this ecological crisis, and at the same time still be building power plants?

Let me share with you how I deal with that apparent contradiction, because on the face of it, yes, I have to make sure there is power when people throw that switch, and it has to be affordable. The three criteria are reliable, affordable and clean.

We are building a coal gasification facility – it will be the largest coal gasification facility in the United States and around the world – in Indiana. We just got approval to build it. It will allow us to do carbon capture and sequestration, because the geology in Indiana is almost perfect for sequestration. We have a lot of work to get done; it will take four to five years to build the plant. It is going take time to build the regulations in terms of how you do sequestration, but if anybody read the MIT study on coal, they know that one of the shortcomings in this country to date is that we have not invested in the research and the development, and done the large-scale projects that are needed, to be able to do sequestration. Carbon capture is an old technology. Sequestration is new – and we need to figure that out. We have more work to do, but we are investing $2 billion to make that a reality and to test the possibilities with respect to sequestration.

In North Carolina, we are building a supercritical pulverized coal plant that will be 30 percent more efficient than our existing plants. What people do not know about building that plant is that it is 800 megawatts, but we have actually committed to shut down 1,000 megawatts of 60- to 70-year-old plants – plants that are so old that we never retrofitted them for SOx, NOx and mercury. As a consequence of building this plant and retiring those plants, our SOx, NOx and mercury footprints would be significantly reduced – those are still issues that we face in this country – but

also our carbon footprint will be reduced on a kilowatt-hour basis. Again, that is about modernization.

We have also proposed to build, and filed with the Nuclear Regulatory Commission to build, a nuclear plant of 2,200 megawatts for about $6 billion. And we are looking in the shorter term to build some [natural] gas plants, for about $1.6 billion, because the demand for electricity is still growing. At the same time, we hope we can cut the growth in that demand with our energy efficiency programs, and we have the flexibility to hold back on some of these plants, at the end of the day, if we can succeed [with energy efficiency].

So at the same time I am working hard for regulation and addressing this issue, I am also making sure that we have affordable, reliable electricity to fuel our economy in the interim. We are investing in renewables. We are building a thousand megawatts of wind in the part of the country that really has the capability to do it. We are buying renewables for our supply – in Indiana, we just bought 100 megawatts. We are investing in South America – we have over 3,000 megawatts of hydropower – we are looking at more hydro, and we are actively looking at ways to invest in solar. I spent three days at Menlo Park in December talking to some of the solar technologists, and what I learned is they are making tremendous progress, tremendous investment. In time, we will find a way for solar to contribute to our economy in the way that it has the potential to do in the future, but much work must get done to get there.

The last thing I will mention, in giving you a sense of action being taken, we are working to transform our grid. At the end of the day, we need to take this grid and move it from an analog grid to a digital grid with sensing devices. It will improve our reliability in the short term, but most importantly it will become the platform, the infrastructure, that will allow us to implement even more advanced energy efficiency products and services. We are committed to spend $1 billion over the next five years to upgrade that infrastructure so that it has the capability to do that, and part of that is putting in place “smart” meters. Meters for us historically have been the cash register, but in the future they become a device that provides two-way communication, that gives us the capability to do that. As a company we are working very hard to transform ourselves. As we have this “3, 12, 41” challenge, we need to put our best efforts, our imagination, our money to work to address that.

Let me now, if I may, turn and talk to you just a little bit about policy, and then I will open it up to questions. I have to put my glasses on for policy! We are in Washington, and you have to be very careful. I can brag about the past, and I can talk about the future, but when I start talking about policy, I need to be very careful!

Let me address this first. I know Mohamed El-Ashry is going to be here later today, and he is the real expert on this, but let me talk to you a little bit about it from a global perspective. I think you

need to see it in a macro sense to understand what we do in the United States. There are different countries with different needs, different governments, different capabilities, different motivations. In my judgment it is convenient, but no longer accurate, to frame the discussion in terms of "developing world" and "developed world." The U.N. talks about this in the sense of having differentiated responsibilities, and I think that is the key to post-Kyoto – post-2012. We need to bring all of the 192 countries together. In my judgment, it is more important to get a commitment from every country in the world than for every country to have the same commitment. I want to just stop for a moment and ponder that thought – every country committed, but the commitment by every country varies. I hear politicians talk about how we ought to lead on this issue. My judgment is – and maybe this is a too Midwestern-Southern approach – but quite frankly, we are not in a position to tell people we are leaders. We need to first stand side-by-side with those who are leading, and then over time if we lead, so be it. But our first assignment is to stand side-by-side and recognize that others have led, and we need to be good followers.

I talked to you a little bit about mitigation and adaptation. I think that is really an important recognition. It should inform our plan, but it should not in any sense be a reason to go slow or not to act now, and I want to underscore that point.

From a U.S. perspective, I think it is very important to get the rules right, and I believe that we have to decouple the cap-and-trade mechanism from efforts to fund R&D for new technology. Let me tell you what that means, because I am supportive of the Lieberman-Warner bill, but I think there are some flaws in the bill.

One of the flaws is they have coupled a need to raise money with the cap-and-trade mechanism. I was in Washington arguing for cap-and-trade back in 1989 when I was a new CEO – I remember the Clean Air Act Amendments of 1990. I think the key to cap-and-trade is having a mandatory cap on CO_2 that declines over time – that is a non-negotiable.

It is also key to set a clear, credible and long-term price signal for carbon that will drive future investment. It is critical as I make economic decisions, and as America makes economic decisions, that we have a price on carbon, and we factor that in our decisions – we will make better decisions.

But let's not forget that the granting of allowances is a transition mechanism to protect consumers until technology is available. In a way, it allows existing plants to operate until they are retrofitted or until they are torn down and new plants replace them. One of the shortcomings of Lieberman-Warner is – as I said a moment ago – it does not decouple the regulatory mechanism from the funding mechanism. In a sense, we are bastardizing cap and trade. I hear people calling – even politicians … (there are so many running for president, it is hard to keep up

with all of their positions) … many are calling for 100 percent auctioning, which is just another way of saying a carbon tax. Some of the politicians are saying we are going to take this money and use it for middle-class tax reductions. I ask, what about the ecological crisis? What about the technology we need to get us to the other side? I think they have lost their way when they talk that way. They are not "on message." They are not facing up to the crisis that we have.

My belief is – and I am going to say this in a careful way – that the best way to fund R&D might simply be a charge on every kilowatt-hour delivered to every customer in America, so that money is earmarked and focused on technologies. You might say to me, Rogers, there are some parts of the country that do not emit as much CO_2 as others. I understand that, but this is a national problem. And by the way, we have technology shortcomings with respect to every technology to generate electricity. With coal, we need carbon capture and sequestration. With nuclear, we need recycling and a way to address the spent-fuel issue. With gas, we have no clue what to do about removing CO_2 from natural gas. With renewables, until we get storage technologies, wind and solar will not contribute in the same way as the other ways of generating electricity. Even with energy efficiency, we need investment in technologies to take that to a higher level, so we truly can achieve the objective of being the most energy-efficient economy in the world.

So we need money for that investment. How it is allocated – whether to the government or to private institutions or universities – smarter people than me can figure it out. But I think we can generate the money in a way to keep it focused on technology, to keep it out of the hands of politicians, to keep it out of the hands of those who want to earmark it to build a bridge to some place in Alaska that nobody ever crosses, to keep it out of the hands of those who want to demagogue a middle-class tax reduction. Let's keep it focused on technology to solve this crisis – I think that is the way to do it. Then we can go to work and use cap-and-trade for what it was intended – to set a price for carbon – and at the same time ease the transition to a low-carbon world for those who are most adversely affected. So to me, it is an equity argument.

Let me now, if I may, turn and talk about how we need to think about this in the end. A lot of people use the example of the Apollo Project. Some have talked about the Manhattan Project. I actually had the good fortune for over a decade to have Neil Armstrong on my board. Every time I needed his vote, I started my presentation by saying, "One small step …" It was amazing – I got his vote! But we do need that type of commitment. By the way, Neil Armstrong is one of the most humble men you will ever meet. He was in the astronaut program, but he did not try to exploit it for his own gain – he recognized he was chosen. And at the end of the day, with all the science, with all the technology, he still had to land it on the moon and use human skills to make that happen. I think that is a lesson for us.

When I talk about the commitment that we need, a lot of people say, "Rogers, you do not get it. We live in the McMuffin age. We live in an age of instant gratification. We live in a period where

I want an instant answer. I have my Blackberry, and I need to connect, and I need to call somebody to text message."

Everything has got to be instant. How do you get people to have the patience, the commitment and the stick-to-itiveness to really achieve what we need to achieve with respect to this ecological crisis? I think what we really need – and my last point with you – is that we need "cathedral thinking" in this country. Let me tell you what that means to me – I will tell you a personal story.

Ten years ago, shortly before my 50th birthday on [September] 19th, my daughter went into labor. She lived in Texas at the time and I called her up. I said, "Chrissy, I am so happy that you are in labor." (Not as happy as she was, I might add.) I said, "It would be worth a lot to that child if you would just hang on until my 50th birthday tomorrow." So I went and jumped on the plane, and I flew to Texas, and I got to the airport at 10:00 at night, thinking, "She is still going to be in labor; this is going to be great."

She had already delivered the baby. I went in the room and I said, "Chrissy." I am a good dad – I said, "Congratulations." She looked exhausted; she had been in a long labor. I looked at her and I kind of smiled and said, "I thought we had a deal." She looked at me and said, "Dad ..." First of all, she is an oldest child, and we all know (I am an oldest child) how we like to please our parents. The first thing she said to me is, "Dad, there are some things I don't control." The second thing she said to me is, "The longer I laid here and thought about your request, the madder I got, and the more I thought, 'She needs her own birthday.'" And then finally (and this is the pleasing part), "On London time, she was born on your birthday." I said, without thinking, "When she turns 10 and I turn 60, I will take her to London, and we will celebrate on the same day." And that just happened in September.

It turns out she had already been to London. (I had not even left the United States at 21, much less 10!) I wanted to do something special for her, so I put her on the Chunnel and took her to Paris, and that led us to Notre Dame.

When I listened to the guide talk about Notre Dame and the 104 years it took to build it, I recognized that the architect never saw it finished. I recognized that those who worked on the foundation, the stonemasons, never saw the stained glass windows; and those who worked on the walls never saw the completion. I recognized that it took three generations, at that time, for that to happen.

Why were they able to do that? They were able to do it because they had a vision, because they saw the possibilities. They had faith in their vision. They had confidence in what they were trying to achieve. And when you think about the 100 years-plus it took to build it, and what they

had to overcome – because we are not talking the modern age – to get that done, it is remarkable.

We need that same kind of vision. We need that same kind of commitment, the same confidence, because the cathedral that we are building is the cathedral for tomorrow – a planet where we have solved this problem. We can do it. We will do it with possibilities, and we will do it with confidence. You are key – the people in this room are key to that success, and I want to thank you for your commitment to the issue. I want to thank you for your commitment to science. I want to thank you for your commitment to our future.

Thank you all very much.