**ROBIN MURPHY:** Good morning, everyone, and welcome to WRI's ninth Annual Stories to Watch. I'm Robin Murphy, I'm Vice President for External Relations with the World Resources Institute. I'm just going to take a minute or two to tell you a bit about who we are, to introduce our distinguished speaker and go over just a couple of housekeeping details.

WRI is a global environmental think tank that goes beyond research to put ideas into action. We work with governments, business, and civil society to build solutions to urgent development challenges. We believe that sustainability is essential to meeting human needs and for fulfilling human aspirations for the future. We have a staff of nearly 300 with operations in China, India and Brazil, and elsewhere. We are nonpartisan and we're independent.

We don't have a crystal ball here at WRI, but through our work in several dozen countries and with many partners, we do get a sense of what's on the horizon. These are key environmental and sustainability stories that you're going to hear that may emerge in the coming year and slightly beyond. As any of you who've joined us in previous years, Jonathan Lash presented Stories to Watch. He was our president for 18 years. Jonathan is now President of Hampshire College. So this year, we're pleased to have WRI's Interim President, Manish Bapna, to present this year's stories. As with every year, these stories are informed by the work of our outstanding staff experts, many of whom are here today and who will be a part of the Q&A.

A bit about Manish. Manish joined WRI as its Executive Vice President and Managing Director in 2007. His interest and expertise are in international development with a particular focus on rural poverty and natural resources. Manish oversees the impact and quality of all WRI program strategies, and under his leadership, the institute has redesigned its managing for results system and deepened its engagement in China, India, Brazil. Previously, he was the Executive Director of the Nonprofit Bank Information Center.

Now just a couple of housekeeping details, we have people listening in remotely on the phone and following online. If you want to follow the discussion online, you can go to WRI.org and find our live blogging system. If you're tweeting about this event, please use hashtag STW12. It's on everyone's table. And your comments will be captured on our online chat. We'll also have the PowerPoint presentation online as well as the video and audio transcript of this entire presentation right after it's completed.

Finally, when we move to the Q&A session, we'll have microphones to pass around, but we ask you to please identify yourself and your affiliation before you ask your question. So, Manish, take it away.

**MANISH BAPNA:** Good morning. And welcome to WRI's Stories to Watch 2012. As Jonathan Lash indicated in previous years, and as I will do so again today, we're not here to make predictions about what will or will not happen. We will leave predictions to the people of New Hampshire. In the past 15 presidential elections, they've gotten the Republican presidential nominee correct 12 times; not bad. But that said, there are real risks in making predictions. Some of you may recall Pat Buchanan in 1996.

Instead, what we would like to do today is to connect the dots of trends, observations, data, that may emerge as interesting stories this year, whatever the outcome. But before looking to 2012, it's worth just a quick look back at 2011. How will 2011 be remembered when it comes to the environment? Many things took place over the past year, but I think there are two themes in particular that stand out. The first one is the economy. And I would argue that there's a big debate playing out in many countries on whether sustainability helps or hinders efforts to revive the economy.

There's conventional thinking in some countries that sees sustainability and kind of economic growth as almost diametrically opposed. You can see some strands of that thinking taking place in the United States. But there are a number of other countries, such

as Germany, that see the two as inextricably linked. Kind of how this plays out, which side is right, is going to in no small part depend on how large, how profitable green markets become; whether these investments really create real jobs, whether they really contribute to growth. That Germany quite recently has decided to really double down in clean energy. They've created 370,000 jobs and they have some of the highest growth rates in the EU; speaks volumes, I think, to this question.

But the second theme that I think came out last year which is a little bit more surprising, was the theme of equity. We clearly saw inequality define some of the big political moments in 2011; the Arab Spring, the Occupy movement. But quite interestingly, this theme also emerged as a defining them in sustainability. Who would have expected that in China, there would be the scale of widespread public protest that we're seeing today? And that a number of those protests actually speak to environmental related issues, whether it's land acquisition for power plants, whether it is actually a protest against severe air pollution in cities. Who would have thought that equity would have really emerged as a defining theme in the climate negotiations in Germany? So I anticipate that these two intertwined themes, one around the economy, one around equity, is going to continue to strongly shape the sustainability stories of 2012.

So with that, let me turn to the five stories that I would like to focus on today. The first is around U.S. climate and energy policy. And then I'm going to pivot, talk a little bit about some emerging stories from China. Then I'm going to focus on some of the challenges that are posed by the accelerating demand for food, talk a little bit about the emergence of competitively priced renewable energy and then what to expect or not expect at the upcoming Environment and Development Conference in Rio. And then we'll have time for discussion.

But before I do that, I just really do want to call out and thank the WRI team. There's been so many people that have been involved in really putting this production together, a huge amount of gratitude and I'm going to pull them in quite actively in the Q&A session.

So, with that, let me start with the dynamics of U.S. climate and energy policy and how you view 2011 on this issue depends a little bit on how clearly you remember expectations at this time last year. 2011 began with very big questions about what the Obama Administration, what Congress, what the states would do on climate and the environment. And this year's record was decidedly mixed. Not nearly as much happened as many people would have hoped, but actually was overall quite a bit better than many had feared. And this was especially true towards the end of the year. There were a number of key decisions that were taken in favor, kind of, of sustainability. The introduction of new vehicle emission standards, the historic mercury ruling, the delay of the Keystone pipeline decision. And this timeline just gives you a quick sense of some of those things that happened last year.

So what to watch for in 2012? In 2008, the Obama Administration set a target that the U.S. would reduce greenhouse gas emissions 17 percent below 2005 levels by the year 2020. And it's just worth noting that that target doesn't come anywhere close to the scale of reductions that are needed to actually keep the climate within safe operating limits. Nonetheless, we did an analysis in 2010 on how far the U.S. could get towards the 17 percent target through executive and state level action, assuming we did not get something through Congress in terms of kind of economy-wide mandatory climate legislation. What could the administration do, what could the states do?

We're currently updating our numbers, but we feel that the 17 percent target is still within reach, but it will require a sustained effort in 2012 and beyond. In the analysis, as you can see here, we outlined three basic scenarios; a go-getter scenario, which gets you pretty close to 17; a middle of the road scenario and a lackluster scenario. And this year, thinking about whether or not the administration will embrace a go-getting scenario will, in no small part, be defined by the political context of the elections.

That said, the administration could choose to move in this direction and try to meet the 17 percent path. And to see whether or not they're willing to do that, here are six specific issues to watch for to assess how far the administration will go and whether, indeed, that'll be the case. So as most of you may know, there are expectations that the Obama Administration will release performance standards on power plants, both new and existing. That DOE will continue work on efficiency standards for appliances and equipment. That both the EPA and the Department of Transportation will finalize the performance standards for light duty vehicles, the model years 2017 to 2025.

There's also an expectation that performance standards for oil refineries are put forward. That there will be regulations on natural gas systems, and that there might be some significant efforts also to reduce emissions of hydrofluorocarbons. And keep in mind that these opportunities are pretty significant. In fact, if you add them up all together, they account for the sources of approximately two-thirds of U.S. emissions. But with each of these opportunities, expect there to be many battles, many stories to watch in terms of how electoral politics play out.

Will the administration take up performance standards or greenhouse gas rules on existing power plants in an election year with a number of swing states in question? How much opposition will there be from oil companies in key states that'll impact the ability of the administration to move forward on refineries rules? And perhaps more broadly, how much will the American people mobilize between public help and the environment creating real grass roots pressure and support for action?

But in addition to the executive branch moving towards this go-getter scenario, trying to get to 17 percent, also means moving on the state level. And we will see kind of two major pieces of state level action in the coming year. The first is California, which we expect to put in place the foundation for their new cap in trade program and a second is the RGGI states in the northeast that will be doing a program review in 2012. A key date in California is going to be August 15th, that's the date that California is scheduled to hold

its first CO2 auction. And getting to the point of actually holding that auction, making sure it goes well, will speak volumes that the actual program mechanics are well in place; that the system looks like it will work.

The governor's budget, California Governor Jerry Brown's budget just released a few days ago, actually estimated $1 billion in auction proceeds that could be used for issues that are covered under AB 32, the climate legislation in California, for the next fiscal year.

For RGGI, RGGI just began its second compliance period. And the key question relates to how states will choose to go forward. During the first compliance period, what we saw was a fairly significant drop in natural gas prices, and that led to a lot of automatic switching from coal and oil to natural gas. And therefore, there wasn't as much demand of emission allowances as we had anticipated. The program is expected to undergo a review this year, and the story to watch is whether or not the program the states decide really to increase the stringency of the cap under RGGI.

So now back to the election. It's amazing how quickly things change in politics. This is 2008, right? The Democratic and Republican candidates both made it clear, a priority to support national action to address climate change. You might remember this one? Sarah Palin, "I do support capping carbon emissions." But things have changed. I don't know if you can read this. In Washington Today, "The sun rose over Capitol Hill and received broad bipartisan support." Looking at the upcoming year, the obvious story to watch is how environmental issues play out in the campaign. And what happens during the campaign matters, for it will to some extent set the stage for what happens in the next administration.

And on climate change, the issue will undoubtedly come up. The question more so is how candidates choose to respond to the issue. It's a point of fact that the House of Representatives has passed more pieces of anti-environmental legislation than any

Congress in history. And many GOP candidates openly reject climate signs. We should look to see whether President Obama leverages his environmental, his public health record, and positions himself in contrast to these more extreme strains of the GOP. Will he lean into these issues or distance himself from them?

And on the Republican side, will the presumed candidate embrace kind of the anti-EPA rhetoric of the House as a prime example of government overreach? Or will they pivot back towards more moderate positions as the general election begins? And we know that the big story, of course, will be on November 6th, and the results of that will shape U.S. energy and environmental policy for years to come.

So with that, let me transition to China. The U.S. is not the only country in the middle of a political cycle. The most significant moment next year in China will be its leadership transition. At the highest level, it's likely that we will see Xi Jinping as the incoming president, and Li Keqiang as the incoming premier. And this is going to take place over the next 18 months. But the transition to watch is not just these two positions; but also the nine member politburo standing committee. Up to seven members of the committee are likely to retire. Most of the major policy decisions are taken by this committee, so who is in, who is out, is as riveting in China as today's vote is in the United States.

So with that backdrop, here are three stories to watch in China. The first is about the solar trade case, which has dominated headlines recently. Most of you are well aware that Solar World brought the case forward on behalf of a coalition of U.S. manufacturers of solar panels. And you also know that a group of solar buyers and installers had banded together to oppose that complaint. They've cited that this would cost U.S. jobs, it could disrupt growth of the U.S. solar market.

Weeks later, China's Ministry of Commerce began a formal investigation of U.S. government support to the clean energy sector. And just last week, most of you probably saw that a new trade case was filed in the U.S. challenging Chinese subsidies for steel

towers used for wind turbines. So the allegations on the wind case are similar to the solar one, but it's really upping the ante in what is starting to become a clean energy trade war between the U.S. and China.

So the story to watch, the U.S. Commerce Department is expected to issue a preliminary decision on the solar panel anti-subsidy claim in mid-February, and on the anti-dumping claim in late March, and a preliminary decision on the wind turbines may take up to six months.

Keep a close eye on this story. If the U.S. Commerce Department rules in favor of Solar World, how will China respond? Will this affect U.S. companies operating in China? And if so, how? And to put this in context, some are suggesting that this dispute can be as politically explosive as the trade wars in the auto sector between the U.S. and Japan in the 1980s.

So let me turn to the second story. China's considering setting a national cap on energy use for the first time. Although the details are not yet known, it will likely be an annual limit on total energy consumption or coal consumption, probably through 2015 or through 2020. Think about that, an actual, absolute cap on energy consumption. China already has an energy intensity target. They've put that in place, it's in the 12th five year plan. This would be an absolute cap, and it would be a fairly significant step forward by China to help decouple energy consumption from economic growth. The ultimate aim of the cap is to limit the use of coal and what you see here is just how significant coal is in the overall energy mix in China; over 70 percent.

But the rationale for setting up this cap is also, in part, political. Beijing has been for quite some time trying to shift kind of the economic structure of China to one that is more reliant on high value added services, less reliant on heavy manufacturing. To move away from energy-intensive industry. Yet being able to create the right incentives to move provincial officials, to move state owned enterprises, is not easy. They've set a lower

growth rate, 7 ½ percent, 7 percent in the 12th five year plan. But in addition to that, they're using this energy cap as another tool to help create incentives to move provinces, to move state-owned enterprises into a less energy intensive economy.

So will this happen? The story's a big deal. We should expect Chinese research institutes and universities to propose designs for what this cap would look like this year. But look for which government officials speak out on the cap. Look where, in what settings, they speak to this cap. Are they going to lay out their reactions in academic conferences? Will they speak to the international media about this? This will provide some signals about just how serious the government is about adopting a cap in the next year or two and if so, what form it will take.

The final story on China that I would like to discuss is that China will likely set up provincial carbon trading systems in 2012. Two months ago, China's lead climate negotiator, Director General Su Wei, said at the United Nations climate conference in Durban, "It's very clear in China's five year plan that it's our objective to gradually establish a national system on emissions trading." Pilot carbon trading has already been approved in China in these six provinces and cities. And you should expect that the pilots for these cities will be established in 2012. What's interesting is the pilots will actually differ from place to place. What China likes to do is actually to test different systems in different provinces, see what works, what does not work, before it decides to scale it up across the country.

So, you could expect some of these systems to be actually based upon an intensity target. Others may be based on an actual cap. Some might be for certain sectors, some might be for multiple sectors. They'll look at the interesting stories to see which types of pilots worked, what resonates with Beijing, what they choose to pick up and actually begin to scale across the country.

But one side story, it's not just China. 2012 is the year that many countries will be looking at how to implement climate policy through trading mechanisms. Europe is expanding its mission trading system to new sectors like aviation. India's establishing a new market mechanism to try to tackle industrial efficiency. Australia, as you probably know, starting with a tax, but that will automatically then move to a cap in trade system. And in the U.S., we have California's cap in trade system starting this year. So 2012 is going to be the year of implementation for trading mechanisms; a lot of trial and error. So the stakes are high. If these countries succeed, we're likely to see much more emphasis on cap in trade systems. And if not, efforts here could really stall.

So the third story that I'd like to talk about is on food. Demand for food is accelerating at a remarkable rate, and how we respond to this demand will have profound implications for biodiversity, for forest cover, for the global climate. The story to watch in 2012 is to look at the choices governments, businesses and consumers make in response to accelerating food demand. Food demand is increasing for several fairly obvious reasons. You all know that the population crossed to the seven billion threshold in October this past year, projected to hit 8 ½ billion by 2030. But perhaps even more striking is the middle class. The middle class was 1.8 billion last year, estimated to become 4.8 billion in 2030. The middle class population's almost going to triple in less than 20 years. That is quite profound.

And as we've seen in the past when per capita incomes rise, people just consume more stuff. And in particular, they move up the food chain. They consume in terms of the types of the food they eat. So, there are many ways in which to respond to this accelerating demand. Historically, it's been a combination of intensification; basically increasing productivity on existing land, and extensification; cultivating new areas of land.

But if recent trends are any indications, increased intensification may not be enough. What this slide does is it shows the average annual growth yields for different types of crops between 1961 and 1990, and then again for 1990 and 2007. And the striking point

about this slide is look at how growth yields, the increase in growth yields, has declined in the last 20 years compared to the previous 30 years.

In order to keep up with demand, the United Nations food and agricultural organization assumes we need to actually have these growth rates be, at a minimum, 1.4 percent each year. That's going to be extremely difficult. So intensification is not going to get us all the way there.

So extensification is a real possibility. And there's going to be pressure, then, to convert many of the remaining pristine natural habitats to food production; the tropical rain forests of Latin America, Africa and southeast Asia, the grasslands of Africa and Latin America, and such extensification will have significant negative effects on the world's efforts to protect fresh water supplies, to conserve biodiversity, to actually tackle climate change.

So one solution to this problem is actually to restore degraded or significant unproductive lands. These so-called degraded lands are areas that were converted from their natural state years ago, they're unsustainably managed, but they're not yielding significant kind of little in terms of food or economic output. And here, you see images of kind of just degraded lands in Indonesia and Brazil. So the question is how much degraded land is actually available for agriculture? And although estimates vary a bit, there was a key study last year that was published in the proceedings of the National Academy of Sciences that found that somewhere between 600 and 700 million acres of degraded land has been abandoned over the past century. And the authors believed that only a very small fraction of this land is beyond repair; meaning that there's a huge amount, about four times the size of Texas, that could be brought back into production.

So the story is look at what governments do. I mean, in 2012, Indonesia is in the middle of a two year moratorium on new concessions for forest clearing. They've agreed for two years not to provide any new concessions to clear forests in Indonesia. During this time,

in this year, will they put in place policies to divert palm oil from forest land onto degraded land? Look at Brazil. Many of you may know that Dilma Rousseff has on her desk a bill that would fundamentally change how forests are protected in the country. It has a number of negative provisions. The bill would open up new forested areas to agriculture and to cattle ranching. Will she reject some of the negative provisions in this bill, and instead invest in restoring Brazil's very significant areas that are degraded to shift kind of cattle into those areas?

Look at business. The Consumer Goods Forum is a consortium of 400 or more of the world's largest retailers. It includes Wal-Mart, Unilever, PepsiCo. They've pledged to mobilize their collective resources to help achieve zero net deforestation by 2020. Fairly significant commitment. Now, will they begin truly implementing that?

And look at consumers. Will they be willing to pay a meaningful price premium for palm oil, for soy, for beef that is certified as sustainability managed? And WRI, we actually have an initiative on this issue where we're actually trying to set up a global restoration council consisting of former heads of state, fairly senior influential figures. We're hoping to launch that this year. We hope you keep an eye out on that as well. If we see several of these come to fruition, then I would argue that 2012 might very well be the signal of the beginning of the restoration generation.

So the fourth story is one that I think is especially exciting. It's about clean energy. The growth of wind and solar power, I would argue, is reaching a crucial tipping point. So where are we today with investing in renewable energy? This is a slide from Bloomberg New Energy Finance. And what it shows is global investments in clean energy in terms of fossil fuel plants and renewable energy plants. And what you will see is renewable energy almost overtaking fossil fuels. And I think the story to watch in 2012 is whether global investment in renewable energy actually crosses that line. Whether there will be actually more investment in renewable energy than in fossil fuel plants.

So why is this fairly fundamental kind of shift happening? Some of you may recall that the IPCC conducted an in-depth study on renewable energy that they released this past summer. And in it, this is based on the cost of renewable energy in 2008-2009. Prices have dropped dramatically, so these are a few years old. And what this graph tries to do right here is the band at which fossil fuels cost, and these are different types of technologies for renewable energy. And what you see is even back then, on shore wind was starting to approach prices that were competitive with fossil fuel. And solar, although not there yet, was starting to move in that direction.

Here's another study closer to home. This is by the National Renewable Energy Laboratory, and it focused on solar PV. Everyone assumes that solar PV is just too expensive. What this study assumes is a modest rise in electricity prices, about 3 percent per year. Makes a number of other fairly reasonable assumptions, and it estimates where will solar PV be cost competitive with other types of energy that utilities procure? And everywhere in that map in red is where solar PV would be cost competitive with fossil fuel. Over 67 percent of the United States by the year 2015, solar PV will be competitive in those utilities. That’s pretty remarkable.

So in 2008, we knew we were close, but there's been dramatic drops in prices over the last three years in renewable costs that have brought us, I would argue, to the edge, a tipping point. We're now seeing specific examples of this turning up all over the world with new stories weekly. These are just some of the stories where clean energy is starting to be more cost competitive than alternatives including fossil fuels.

Let me just give you one example where this is happening; diesel fuel. Ten percent of electricity in the world is generated through diesel fuel and solar PV is already becoming more cost competitive than diesel. If you take, for example, in India there was a recent auction for solar power contracts. They came in at 16 cents per kilowatt hour; diesel fuel is at 18 cents per kilowatt hour. So this is just one example of many of where we're seeing this actually happen.

But whether or not global investment in renewables actually surpasses fossils, whether those two lines actually cross, is going to depend pretty importantly on two key issues. The first is the effect of the shale gas boom. In countries such as the U.S., low electricity prices make it tough for renewables to compete, to become cost competitive. One of the good things about shale gas is it's creating very significant downward pressure on electricity prices; that's a good thing. But, shale gas also has fairly significant greenhouse gas emissions and we're actually doing some work on trying to estimate exactly what is the greenhouse gas emissions of shale gas.

But the challenge is that just as shale gas may divert investment away from fossil fuels, it is quite plausible that shale gas will divert investments away from renewables. And that is a challenge that I think will play out, or will affect, how much uptake there is in renewables over the coming years.

But the second issue is government commitment to clean energy, policy and incentives. Fiscal and political constraints are going to be tight across much of the globe in 2012. And given that, there's a big question before governments; are they going to kind of embrace steady, well telegraphed support programs for clean energy? Or are they going to see support for renewables as low hanging fruit to cut under political and fiscal pressure? What this slide is, it's from Brookings. And what it does is it shows on the left different types of clean energy incentive programs in the United States. Timeline is the horizontal axis. And you can see that a number of key programs for clean energy actually expired December 31st, just ten days ago, including the very important 1603 Treasury grant that was part of the stimulus funding program. It also shows that by the end of 2012 this year, that a number of other incentive programs will expire if they are not renewed. To give you one example, production tax credit for wind being a particularly important one.

So the story to watch here is keep an eye on how these policy decisions are taken in the U.S., how they're taken in China, how they're taken in Germany, how they're taken in India. Because I would argue that what happens in these four countries would pretty much determine the future scale of investment in clean energy and whether or not those two lines actually cross. So shale gas and support for clean energy will be the two issues that determine in our view whether those lines cross. Our small take here; stop, wait. Government's no longer the problem. It can be the solution.

So let me turn to my fifth and final story about Rio. June 20th to 22nd, 2012, is the date of the Rio+20 conference in Brazil. Over 40,000 people are expected to convene in Rio in six months. And this meeting is the latest in a sequence dating back from Stockholm in 1972. Stockholm was a watershed event. It was the first major international conference that was focused on the global environment. It would be 20 years before the next global conference on environment and development, and this time it was in Rio. What was called the Earth Summit, 1992, the mood really reflected a very strong faith in international principles, international treaties, international institutions. You can see that in terms of some of the key outcomes of Rio; the United Nations Framework Convention on Climate Change came out of Rio. The United Nations Convention on Biological Diversity.

But ten years later, the mood had changed quite a bit. We were in Johannesburg and it reflected a shift away from international treaties, international institutions. Rather, it focused much more on voluntary pledges and public/private partnerships. Many of the commentators viewed Johannesburg as mixed success at best. So as we come to 2012, I mean I think there's a recognition that those earlier summits haven't yet solved the sustainability challenge. But many are asking, if it’s not the faith in international institutions, international principles as we've seen in Rio, if it’s not public/private partnerships as we saw in Johannesburg, what is going to be the kind of theme, the approach, that really resonates, that the international community is expecting from Rio+20?

In terms of substance, on the official United Nations agenda there are two pillars. One is focused on the green economy, and that is about how to integrate sustainability into economic decision making. And the second goes by the slightly clunky term, the institutional framework for sustainable development. And this actually is talking about how you integrate sustainability into international institutions such as the United Nations, the World Bank, the World Trade Organization.

The challenge is that with six months to go, vision and leadership for the conference is only now beginning to emerge. Here's a little bit how different countries are looking at Rio+20. The EU has a very strong focus on the green economy, they're a very strong champion for a new institution, a United Nations environmental organization. The U.S., on the other hand, has signaled no interest in adding new institutions, keen to engage the private sector, keen to look at how to leverage social media. The developing world is starting to come to the game, a bit of a defensive posture on some of the issues.

What you can see here is that basically countries have not yet coalesced around what Rio can deliver. So I'm a bit doubtful that we'll see any major breakthroughs from the official process in Rio in terms of the top down, kind of formal agenda. That said, I think we could expect to see a number of exciting actions emerge more organically from the bottom up that would involve, perhaps, a subset of governments, of businesses, of civil society or some combination of them.

And here's kind of four of those more organic initiatives to keep an eye out for. I think we might see something on energy security. We could see a subset of countries committing to provide financing towards this concept called sustainable energy for all; the fact that 1 ½ billion people don't have access to modern forms of electricity. We could see something emerge around food security; the fact that one billion people still go to bed hungry every day, or around water security.

But I think one of the more interesting areas we also might see some action on is the issue of governance. We could expect to see some governments make commitments to improve access to information, to improve access to participation, to justice. Poor governance is oftentimes at the core of many of the sustainability challenges we face. So this would be a very significant step forward.

So with that, let me just stop for one remark before I close. You know, we believe movement towards sustainability is actually under way in many places around the globe. It's collapsing kind of fairly artificial boundaries between the economy, between the environment. It's redefining concepts of what constitutes quality of life, national security. And this move to sustainability, we would argue, is not wishful thinking on our part. We observe it being driven not jus by altruism, but by necessity, by long-term business strategies, by political calculations. In many instances, pure survival for many people. So with that, thank you very much and I think we will open it up for questions and answers. [applause] So, shall we take some questions? And I'm going to pull in my colleagues to help with the responses. So, one in the back.

**CHRIS HOLLY:** Manish, I'm Chris Holly with the *Energy Daily*. I wonder if you could speak for a moment about the issue of water in the U.S., the drought in Texas and the southwest in general appears to be on track to continue with La Nina continuing. I guess some government entity recently reported that the first week of January was among the driest in our history. There's no snow anywhere. ERCOT in Texas reported late last year that it may have to curtail some coal fired generation if the drought continues in Texas, et cetera, et cetera. So, what do you see happening policy-wise in response to what appears to be a pretty dramatic water year shaping up?

**MANISH BAPNA:** Should we take two or three questions?

**MARK DRAGEN:** Mark Dragen from Bloomberg. I wanted to take you back to your comments about shale gas and the climate effects of that. It seems that for many people in

Washington, the idea of cheap gas is seen as a plus, both for the environment and for the climate. What's your take on how that debate is going to kind of shape up in Washington over the next year, and also with the concerns, obviously the environmental concerns, about fracking and how that's done?

**MANISH BAPNA:** Okay.

**TAMAR HALLERMAN:** Hi, Tamar Hallerman from Exchange Monitor Publications. You mentioned the EPA possibly moving forward on new source performance standards for coal fired power plants. I'm curious whether you think this will actually move forward; or whether the Obama Administration will walk back on those standards like they did with ozone? And if they do move forward, do you expect something similar to what we're seeing out of Canada, pegging that to the emissions rates of uncontrolled natural gas and that sort of thing?

**MANISH BAPNA:** Okay, why don't we take these three and then we'll move on to a second round. I'll take them in reverse order, and I'm going to pull in a couple of my colleagues to add. So expectations, to the question about performance standards for power plants. We expected to see these performance standards in 2011, they were delayed. I believe we would actually see and anticipate that there will not be a problem with performance standards for new power plants. I think the big challenge is actually going to be the existing power plants, which we know represent a much greater bulk of the greenhouse gas emissions from the electricity sector. Kevin, do you want to add a little bit more on this?

**KEVIN KENNEDY:** Yes, I'm Kevin Kennedy. And I think the one thing that I would ad to that is that, as Manish just indicated, the existing power plant standards in some ways from an emissions point of view, are quite significant. And there's a real opportunity and a real challenge in terms of getting good standards that will be meaningful and have the flexibility that will allow the utilities to be able to adapt to them

well. So we think the EPA is taking a hard look at that and we're not going to speculate on exactly what that will end up looking like, but we do think that there's some real opportunities there.

**MANISH BAPNA:** I'll probably come back to you on shale gas in just a moment. So the question about shale gas, it's quite mind boggling to think just how significant the impact of shale gas has been on energy markets in the United States. And we're beginning to see that actually happen in other countries as well. Many of you may have read that China is already investing in U.S. companies to explore around shale gas as a way to learn more about how to exploit it in China.

The environmental impacts on shale gas can be-- there's been a lot of focus, and rightfully so, on kind of the local environmental impacts on shale gas; the water impacts, the air impacts. What there has also been some study on, though it is not yet conclusive, is what are the climate impacts of shale gas? And is shale gas extraction more greenhouse gas emissions intensive than natural gas? And there's a big question around methane emissions in this big debate. There's been a number of studies, as you know, that have tried to assess this question, nothing yet definitively has come out. But we think that it's actually a pretty important issue to better understand.

I think the real challenge, the way we see it, I think the challenge is if you accept that more broadly from a climate perspective we have to transition to an energy future that is as low carbon as possible. What is the role of shale gas in that transition? I think there's a broad recognition that shale gas can play an important role in beginning to transition away from fossil fuels, but there's a real risk of lock in if these plants remain for 20 or 30 years and we actually need to get emissions down to 10 to 15 percent of what they are today. There is a political challenge of how you actually move from the lock in risk of shale gas to ultimately kind of clean energy. Do you want to maybe add a little to that?

**KEVIN KENNEDY:** Again, I'm Kevin Kennedy and as pointed out-- I should mention my title as well. I'm Director of the U.S. Climate Initiative in the climate and energy program at WRI. And I think the only thing that I would add would be on the particular question of what are the greenhouse gas emissions from shale gas, the important question in a lot of ways is not the comparison that has gotten a lot of debate over the last year or so about how does it compare against coal, the methane emissions contribute to the greenhouse gas impact, and a lot of the uncertainty on the studies that have been done have to do with variation in understanding about what the methane emissions look like. We think that if you take a hard look at that and start sifting through where there's opportunities to improve management practices, what you can do is start identifying ways of minimizing the greenhouse gas emissions from shale gas, which is an important part of the larger picture.

**MANISH BAPNA:** On the water question, now this is not an issue that WRI actively works on in terms of within the United States, broadly water scarcity policy, we do some work on water quality. I would just signal that you're absolutely right in terms of kind of the record events we're seeing around droughts taking place. NOAA, as you know, kind of releases these monthly and annual kind of state of the climate reports. You've seen kind of that we've had the worst, the driest year on record in the past 117 years for a good chunk of the United States over the past year.

I think the challenge of water is clearly being further complicated by climate change; that there is a much higher likelihood that droughts, that floods, will be linked to increases in temperatures. That is on top of, obviously, the greater demand around water, the implications for water around energy. Craig, do you want to-- Craig Hanson directs our people and ecosystems program, and so has a little bit of oversight around water. So see if you'd like to add a few remarks on this?

**CRAIG HANSON:** Just on your question there, a couple of thoughts. You talked about water and the challenges with power. My view is that increasingly we're seeing water is

becoming one of the new limiting factors on the human quest for energy and the human quest for food. And it's one thing that wasn't there maybe ten years ago, at least here in the United States. Other parts of the planet have already been experiencing this, but welcome to the rest of the world, right? So we're seeing that now, so that's high on the agenda.

Secondly, you asked about the policies. Water's very local, like politics. And so whereas the U.S. maybe has been taking more of a national or regional approaches when it comes to the carbon question, let's say, water at the end of the day, jurisdictionally, it's very much localized. And so your policy question at the end of the day is going to come down to those water districts, et cetera, in terms of where the policy solutions would come, I would argue. And that's where the rubber's going to hit the road.

And so I think that's kind of just quickly the key insights coming about your comment here in the sense that water's become the new carbon in terms of how companies and governments need to be thinking about environmental issues. It's the next big thing, if not already the big thing.

**MANISH BAPNA:** Kirsty?

**KIRSTY JENKINSON:** Just a couple of comments as well. I'm Kirsty Jenkinson. I lead our markets and enterprise program at WRI and we're doing a piece of work specifically looking at the intersection of business and water. And just to answer your question specifically following up from Craig, I think the point is absolutely critical, that it's local. We're working a lot with companies in the Colorado River basin, looking at obviously the incredibly complex arena that exists there. And I think what we're seeing is a real demand for the kind of localized, granular data that enables you, really, to see where the water issues largely relating to scarcity and also to quality actually play out from one part of a river basin to the other.

And it's only, I think, when we get a better understanding around the world, not just-- in all of these water stressed areas about the real differences that exist from one mile south to one mile north, you're going to start to see the kind of policies required, both at local levels amongst river basin commissions and at an international level to really sort of drive a kind of understanding of how water's affecting business, affecting policies, and affecting the economy largely.

We're specifically working with a number of companies to try and understand what role they can play, not only in mitigating the impacts that they have on the water ecosystems, but also what solutions can they provide as we shift to an industrialized economy in many of these areas. How can they minimize their risks, but also provide the technologies that are going to actually help us manage it? So I'll just add a little bit on that side. Jennifer, I think you had a comment to make?

**JENNIFER MORGAN:** And last, but finally, the work that Kirsty mentioned actually integrates climate risk into the water scarcity assessment. So it is local, but it is national and global. So, looking at what a 450 scenario, 450 PPM concentration of greenhouse gas scenario means on those places is a key thing. And looking at your policy question, I think you cannot solve the types of water issues you were mentioning without putting in place national climate and energy policy. That's quite clear.

So I think the question, or the story to watch, is will any of these events, which are consistent with what the IPCC and national scientists are saying are linked with climate change, will that contribute to the national debate on the types of questions that Manish outlined on power plants, on refineries, et cetera. I think it's fair to say that in almost all other countries of the world, there is a factor of looking at climate change impacts and what it actually means for a country and the risks that that country is looking at, as the southwest is looking at now. And then thinking about, well, what do we need to do about it from a climate change policy perspective as well.

**MANISH BAPNA:** Just one final point, almost like another round, is just on Jennifer's comment, to add to that. You know, one of the pieces of research we're doing is actually in China looking at the water consumption of different types of energy technologies. So, I think there's a real recognition in China that China, as you know, much of the country is highly arid; that they project there to be even greater scarcity of water in no small part because of climate change. How is that going to affect energy investments they make for different types of energy technologies? They're building power plants that'll have 40, 50 year time frames. Will there be water to cool those plants 30 years from now? So we're actually doing some work in China on that very interesting nexus question.

Let's take another round. Okay, let's take maybe three. Uh-huh?

**VALERIE VOLCOVICI:** Hi, I'm Valerie Volcovici with Thomson Reuters Point Carbon. I just noticed that you've left the international climate negotiations off the list. So, just wondering if this is post-urban fatigue or if you think that the major issues have already played out?

**MANISH BAPNA:** Good question.

**NATHAN PIERCE:** Hi, Nathan Pierce with Fuel Cell and Hydrogen Energy Association. I understand another story to watch which you alluded to during your presentation is the Keystone pipeline decision. I understand Obama has received pressure from Congress and he needs to make a decision closer to 50 days, has received pressure on both sides. I wonder what your take is on the implications of the decision, and where you think it's going to follow?

**MANISH BAPNA:** Okay. Good question. Yes, please?

**RENEE SCHOOF:** Hi, Renee Schoof from McClatchy Newspapers. I noticed the sliver for China's renewable energy is even smaller than here, it was 0.00 percent. I'm wondering what the outlook might be for renewable energy markets to grow in China?

**MANISH BAPNA:** Okay. We'll take one more.

**SARAH KING:** Sarah King, I work on sustainability issues at DuPont. On the Rio trend, you mentioned these very broad themes, energy access, food security, water security, governance. I wonder with Rio only about five months away, can you get any more granular about what specific outcomes we might see in those areas? I know no one has a crystal ball, but I wonder if there's ongoing work in those areas that you all are plugged into where you could add more detail?

**MANISH BAPNA:** Sure. Okay, let's start with those. Let me start with Durban, and I'm actually going to turn it off immediately to two people; one, Jennifer Morgan, I don't know if she introduced herself, but she's the Director of our Climate and Energy Program. And then I'm going to ask Jake Werksman who directs our institutions and governance program to talk about some of the legal dimensions that emerged out of Durban. But Jennifer, you want to give a big picture?

**JENNIFER MORGAN:** Sure. On the big picture, I think the reason why you didn't see it in the stories to watch for 2012 is because the negotiations are now going. There's not going to be a big moment in 2012. I think it's now moving into a phase both of further rule making and on the international level, I think the big story of 2011 was actually that there's been a new round of negotiations launched on a legally binding agreement that needs to be concluded by 2015. And so 2012 will be trying to figure out what that could look like, the beginning thinking of that, organizing that on the international level.

I think the international climate stories more are on the implementation side of things. So is Europe going to go to 30 percent, because we know that the pledges currently are

inadequate to stay below two degrees. Is China going to succeed in implementing its national policies or not? So, I think on the international level it's more to be looking at those implementation types of stories, and maybe for you all a key question is this new mechanism that's been agreed, a carbon market mechanism, what that's going to look like internationally.

**JAKE WERKSMAN:** Thanks. I'm Jake Werksman, I direct WRI's Institutions and Governance Program and work closely with our climate energy program on international legal issues. One of the stories I'm sure you all followed in Durban was this issue of whether the future of the climate regime is leaning more towards what we saw in Copenhagen and Cancun, which the U.S. has been broadly supportive of, which was an idea that countries should come forward with pledges that would be reviewed but would not be legally binding in that character. Or whether the future of the climate regime is going to be shifting more towards the Kyoto Protocol model that the Europeans have been very supportive of, and which countries commit formally to legally binding caps on their emissions.

And the great debate that was somewhat resolved in Durban was whether the emerging economies were going to tip in one direction or the other. A form of words was agreed, which basically suggested, as Jennifer indicated, that by 2015, we'll come up with an agreement that will have an outcome with "legal force." So the real story to watch in 2012 is how China and India and Brazil, those emerging economies that we're trying to bring into this international regime interpret those terms that determine outcome with legal force, and whether it signals their willingness to join the European view of the world or the more U.S. view of the world as to the future shape of the regime. So I think that will be a story to watch, even if it won't be concluded decisively in the next meeting in Doha.

**MANISH BAPNA:** Maybe just one final observation on Durban, just building off of that, one of the things that we saw, if you go back two years ago in Copenhagen, was this

emergence of kind of a new constellation of actors that was kind of defining the international climate negotiations. You had the basic countries sitting down with the United States and really kind of putting the major contours of the Copenhagen Accord on paper.

What I think is quite interesting about Durban is the politics of who was sitting at the table changed quite significantly. And in Durban, what you saw was the EU with the developing countries really coming together and driving the agenda. But within the developing countries, what you saw was an interesting schism starting to emerge between the least developed countries, the [00:59:11] countries and the large emerging economies, the Chinas and the Indias. And you saw China and India hesitating a little bit more about a very strong, legally binding outcome whereas the smaller developing countries, which were much more keen to have that. And I think how that plays out, this bloc, the G77, as those interests really become less inherently kind of compatible, how will that play out? Will China and India pivot back and will that G77 become a unified bloc again? Or will fissures continue to emerge? I think that'll be an interesting kind of broader political story that may emerge out of Durban.

Let me come to Keystone. I think it’s still just worth bearing mention just how remarkable the decision that was taken by the Obama Administration to delay the decision on the Keystone pipeline. Six months ago, it was accepted-- it was a foregone conclusion in this city what the administration would do. And in a very short amount of time, in no small part because of what took place in Nebraska and other places around the pipeline route, and I think in no small part because of the pretty massive outcry by the environmental community, that it did change the politics, the calculus, a bit to lead us to where we are today.

I also think it's kind of interesting just to recognize that there's this big debate around jobs and everyone is spinning the jobs and how many jobs actually would be created; permanent jobs, temporary jobs, what types of jobs in many different ways, and getting

down and really trying to understand that with some rigor is crucially important to better understand what Keystone represents and what the counterfactual may actually look like.

As most of you know, in a recent bill placed pressure on the Obama Administration to make a decision within 60 days. The State Department signaled quite recently that it would not be possible to meet that 60 day limit. How that plays out is going to be quite interesting. I'll see if any of my colleagues want to speculate an answer, but I doubt so. All I would say is that we applaud what the Obama Administration did to delay to look at this quite carefully, and I think we'll be looking to see whether or not the Obama Administration follows through in its commitment at that time, a couple of months ago, to delay or not.

China's renewable energy market, I'll chime in, but maybe I'll ask Paul Joffe. He leads a major project for WRI around China and Chinese policy. You want to say a few words?

**PAUL JOFFE:** Sure. China's prospects on renewable energy, the Chinese have been growing their renewable energy by leaps and bounds. As, I guess, the question indicated it's still just a sliver of the overall energy picture. But there are prospects for more doubling and tripling in wind and solar where they have not had that much domestic capacity. They're now turning in a big way to solar and, for example, they've instituted a feed in tariff that's going to no doubt boost that. But the question that you always have to look at with respect to China is the growing economy and the growing consumption of coal. So even though renewables may grow in very impressive ways, the overriding question is what's going to happen to coal? And that's why the cap and the trading mechanism that Manish referred to is so important.

And our China FAQs, we call it China FAQs project, we have a little summary of a Lawrence Berkeley Lab study on the back table there that shows coal consumption of energy in general and within that, coal plateauing around 2030 which is recent work that's been done and more of a reduction than previous projections have shown. So, those are

the things to watch and the combination of effort on renewable and the kinds of things that they're doing on coal are important.

But one last thing is the issue of the relationship with the United States. What the United States does is also important for the prospect in China. Some of it is collaboration that is ongoing with China; for instance, R&D on carbon capture where both countries have complementary strengths and what they do together and if they continue to do it vigorously could have implications for the coal issue that I was describing.

But also, the fact that the Chinese, a lot of people don't realize this, they actually respect the technological prowess and ability of the United States. And so what the United States does can have implications for what China does.

**MANISH BAPNA:** So let me just add a couple of quick additional remarks on the China piece. It's just important to also keep in mind the distinction between energy and electricity, of course. The electricity numbers are a little bit more significant. The difference between capacity and generation, so there's a fair amount of capacity that's been put in place. Not all of it has necessarily yet been connected to the grid. Not all of it-- capacity loads tend to be quite a bit-- plant loads tend to be quite a bit lower for clean energy than for other fossil fuel alternatives.

But also to keep in mind, how different 2008 is in terms of numbers from even 2011 or 2012. We've seen just a significant growth in solar, in wind in the last two, three years. And just to give you a sense of the commitment by the Chinese government, they've just upped their recent target for solar power to 20 gigawatts by 2020, I believe, and it's quite likely that they will meet that as well. So there's an increasing confidence of domestic use of clean energy in China. Much of the focus so far, much of the view so far, is that they're creating the wind turbines, they're creating the solar PV panels for export. There is a much greater recognition about how important domestic consumption is. They're putting in place what Paul mentioned, the feed in tariff, they're putting in place higher targets.

And it's even in the 12th five year plan which I believe is 11.4 percent by 2015 for non-fossil based energy. Correct? By 2015. So it's actually a key target in the 12th five year plan. That does include hydro. But it is a very significant shift, I think, that the Chinese government is seeing.

And that is not just because of concern around global climate issues; it's perhaps in part that. But there's also quite importantly a recognition of energy security issues. China is highly dependent on imports for coal, for oil and gas. How do you actually respond to the volatility in prices, how do you manage that risk? But they also see, I think, quite importantly, that there's an opportunity here for jobs and that they're also quite sensitive to the local pollution challenges of conventional fossil fuel. So there are many reasons that are helping create this shift in the government to really embrace domestic consumption of renewable energy.

On to Rio, I wish we had a crystal ball and could tell you more concretely what will happen. It remains fuzzy, and that's probably-- there are a number of initiatives that people are talking about. The clean energy one is one that is a bit more concrete in that there are specific targets that people have put in place in terms of additional number of people to connect to modern forms of electricity; the share of clean energy that that should consist of, the amount of money that needs to be raised, trying to get people to come together around that is kind of a more concrete thing that is emerging.

Another concrete thing is I don't know, there's a-- in the international development world, these millennium development goals that have guided development assistance between 2000 and the year 2015. They will be expiring in 2015 and there's a big debate that's emerging about what should replace them. I think most observers would agree that these millennium development goals have been quite influential in shaping development assistance from the rich worlds to developing countries, what will they follow? And there's a new proposal, a new set of discussions, about whether or not sustainable development goals should either replace millennium development goals or the concept of

sustainability and equity to be more firmly embedded within the millennium development goals. There's specific proposals that are being put on the table by different countries that I anticipate will be discussed, debated, in Rio.

And then there's also, I think, some exciting things around governance. Maybe I'll ask Jake if you want to say a little bit more about what we might see concretely in Rio?

**JAKE WERKSMAN:** Okay, thanks Manish. I think you've covered most of it. Many of you, if any of you are following this process, you'll know that the United Nations Secretariat in New York released a zero draft document yesterday. The term zero is not intended to refer to its content, but that it's a first effort to get governments around the table to discuss that draft. And it will then be the governments to essentially produce the first official draft amongst themselves.

I think one of its most interesting characteristics is it's a relatively short document, particularly for a United Nations process. It contains a lot of high level principles, but it essentially invites governments to come forward with their own commitments that reflect the principles in this text and for those commitments then to be kind of formally recognized as part of the process. So, I think what we'll see is, hopefully in the next five to six months, is governments taking this process a bit more seriously and coming forward to suggest what is it they're willing to commit to at this important anniversary event. And then hopefully from those kind of unilateral efforts, to begin to see patterns of where governments are actually in a position to cooperate with each other to achieve those goals.

And they might, and hopefully will be, along the themes that Manish has identified around water, energy, food, food security, and governance. And we'll see that content, then, coming directly from the governments as part of the next step of the negotiating process.

**MANISH BAPNA:** Should we take another round of questions? Yes, in the back?

**RYAN TRACY:** Hi, Ryan Tracy with Dow Jones. I wanted to ask about the U.S./China renewable trade dispute that you were talking about. If there are duties or tariffs imposed by the U.S. or on either side, what effect do you think that will have on the sort of optimistic forecast you gave for wind and solar? And in particular if you don't think those would have much of an effect on that forecast, why is that?

**MANISH BAPNA:** Is there one or two more questions? Yes, please?

**__:** A follow-up question on Rio. The four organic themes that you mentioned; energy access, food security, water and governance. The way that you characterized them, they sounded almost like themes related to meeting basic human needs of current generations, whereas some of the past conferences have seemed much more focused on meeting the needs of future generations. And I'm curious whether I'm interpreting the themes correctly and whether that's a shift that you're hearing as you think about the run-up to Rio+20?

**MANISH BAPNA:** Okay, yes, we'll take one more, this question right here.

**__:** This may be a 2012-2013 question, but on the campaign trail we see a number of the candidates, pretty much every one of the candidates save Jon Huntsman, is actively denying the science of climate change. We see most of the candidates threatening to shut down the EPA, or significantly diminish the EPA authority if they become president and criticize the international climate policy process. I'm wondering how you think that would play out in actual policy reality if one of these candidates became president?

**MANISH BAPNA:** Okay. Let's start with the question about the trade disputes around solar panels and wind turbines. Just kind of maybe some observations about what we expect to see in terms of timing. The decision, as I mentioned earlier, around the solar

panel case, February or March. The wind, the preliminary determination, within six months. The trade dispute is further complicated by the fact that the U.S. classifies China as a non-market economy and historically, if one looks at cases that have been put forward to the Commerce Department, to the International Trade Commission, that that actually oftentimes many of the rulings in the past have been in favor of the platform.

Two things need to be shown. One is that China is actually engaging either in anti-dumping or in countervailing actual activities. The second is that there's been material harm to the domestic industry. So both those decisions have to be taken in order for a countervailing duty or an anti-dumping duty to be slapped on to imports from China.

The scale of those duties that people are talking about, and I'm going to ask Paul, who knows the details, to chime in in just a moment, are pretty significant. And then there's the question about if that happens, how will that affect kind of domestic production in China. Paul, do you want to talk a little bit more about the details here?

**PAUL JOFFE:** Yeah. I think that it would be misleading to tell you that anybody knows the answer to that question. There are a lot of imponderables, and just one point on what Manish said about the decision making process. It's not only a question of injury, but of causation. It has to be shown that the activity is causing the harm. So, if other factors are the cause, then even though the conduct is going on, the International Trade Commission-- there are two agencies involved here, the Commerce Department and the ITC. If it ruled in the negative, that would be the end of the case.

In terms of impacts, there are other factors that are contributing to prices in the industry and also this is not an issue that would be in the case, but the question raised a question about what would happen if duties are put on. We don't know sitting here today what the duties would be, we don't begin to know what they would be. And there's also the counterfactual of where is China going with these subsidies?

So if there had never been a case, would the subsidies continue at the level that they're alleged at the present time? There are all sorts of things going on in China as you know. There's a housing bubble, there are other things happening. And on solar, in particular, China is turning towards domestic use of solar, not just export as it has been up until now. So there will be a market for those panels domestically and China's a big place. So, there's a big market for the use of those panels.

So with all those factors, it would be misleading to say we have an answer, although we'll be looking at-- I mean, it's early days. We'll be looking at what all the analysts are saying about these things as it unfolds.

**MANISH BAPNA:** Jennifer, did you want to add a point?

**JENNIFER MORGAN:** Just briefly, Jennifer Morgan. I think the other thing we found in our research is that the dominant factor to whether renewables grow or not is the national policy framework and often the presence of feed-in tariffs. We've seen this not only in Europe, but we're also seeing feed-in tariffs being implemented in small countries in southeast Asia which are growing. So I think the story to watch as far as your question in regard to the growth rates and whether that peak, that crossover is going to occur or not, certainly this case will have some impact on that. But I would also be looking at those other national policies, seeing as Manish said, if they continue or not as far as the global growth of renewables.

**MANISH BAPNA:** Just I think that's exactly right. The premise behind your question about whether or not a full scale kind of trade dispute between the two would actually have some impact on the growth rate, it will. How significant, it's hard to say. But it's also just useful to keep in mind that just as this is taking place, President Obama when he was at APEC just a few months ago, was negotiating with China and the broader Asia Pacific countries actually in agreement to lower tariffs on environmental goods and services. So just as this is heating up, there is a corollary negotiation that's taking place to

actually lower trade barriers on environmental goods and services. So it gives you also a little bit of the political interest to try to diffuse a major dispute in an area that is of strategic interest to both U.S. and China.

Coming to Rio, the three or four themes, clearly I intended that sustainability is kind of embedded in each of them. So even though they are-- and I think the question that you pose is an important one because it's not just about sustainability or the environment, it's not just about development. I think the way that it's being framed is recognizing that the two are truly linked. So when it comes to energy, it's a recognition not only that there is a need to provide access to energy for those that do not have access, but that oftentimes the most economical way in which to connect people that don't have access to modern electricity is through clean energy solutions, distributed renewable energy as a classic example.

And so I think with each of those, energy, food, water, is it about not only responding to the development needs of the broader global community, but doing so in a way where sustainability and equity are firmly kind of intertwined. And I think also, there is an increasing recognition that these issues cannot be seen in isolation from each other. There's been a lot of discussion, dialogue, looking at the nexus, recognizing that-- looking at food and not looking at water is silly, as is looking at water and not thinking about the implications on energy as we discussed earlier. So the nexus question, I think, is an important one as well.

Let's close with the final question around what happens if a Republican candidate wins in terms of broader commitment to energy and climate policy. I'm just going to-- fairly obvious points, but both Romney, hard to know kind of where he stands on these issues. He has provided mixed messages in the past. It's worth noting that Massachusetts joined RGGI when Romney was governor, although he was not a very strong advocate of that at that point in time. Gingrich, as you know, has also had different messages on this issue. Kevin, do you want to take a stab at what you expect?

**KEVIN KENNEDY:** Yes. Again, I'm Kevin Kennedy. And on one very particular point, I'll break the rule about a crystal ball and I will say that when we come back next year for the 2013 Stories to Watch, you're right. That's going to be one of the stories to watch for 2013, whatever administration it's going to be in 2013. But I think in terms of thinking about that issue, the important thing is to take a step away from the primary election season and think about the story to watch that we talked about in the context of the general election. How the two candidates position themselves in the general election will say a lot about the direction that a 2013 administration, whether it's a second Obama Administration or a new Republican administration, where they will want to, and where they will be able to go on environmental and climate policy.

**MANISH BAPNA:** So with that, it's 10:30, I think it's a good question to close on. We'd like to thank you for spending your morning with us. We have a number of experts in the room. I know that many of you may have more detailed questions, we'd just encourage you to take the time to meet with them and get deeper. We also have materials in the back. And thank you once again for your time and your questions. [applause]

END