Committee Meeting

of

ASSEMBLY ENVIRONMENT AND SOLID WASTE COMMITTEE

ASSEMBLY BILL No. 3301

(The Global Warming Response Act; plus testimony concerning the issue of climate change and possible legislative options to address the issue)

LOCATION: West Orange High School
51 Conforti Avenue
West Orange, New Jersey

DATE: February 20, 2007
7:00 p.m.

MEMBERS OF COMMITTEE PRESENT:

Assemblyman John F. McKeon, Chair
Assemblyman Robert M. Gordon, Vice Chair
Assemblyman Louis M. Manzo
Assemblywoman Linda Stender

ALSO PRESENT:

Carrie Anne Calvo-Hahn
Kelli B. Kelty
Office of Legislative Services
Committee Aides

Kate M. McDonnell
Assembly Majority
Committee Aide

Thea M. Sheridan
Assembly Republican
Committee Aide

Meeting Recorded and Transcribed by
The Office of Legislative Services, Public Information Office,
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ASSEMBLYMAN JOHN F. McKEON (Chair): Okay, everybody. Which is the amplification, that one? (referring to PA microphone)

Okay, everybody, welcome to West Orange. It's my privilege as the Mayor of this fine community to welcome you all here. I'm sure, as you look around and see the beauty of this brand new cafeteria, it's something we're all very proud of, regarding making certain that our students have the best of facilities. And thank you for all being here.

I'm glad to bring Trenton out to Essex County today. And by the response that we have, just by the shear number of people, I think that certainly speaks to the seriousness of the topic, as well as the type of commitment around the state and this region. So again, I appreciate you all being here.

Let me speak a little bit as to the logistics of what we are going to do. There is only one matter on our agenda today -- Assembly Bill 3301. I'm sorry, I don't know the corresponding Senate number, but it's the Global Warming Response Act. I'm going to open the microphone in a moment to the primary sponsor in the Senate, and then have the primary sponsor here in the Assembly, Assemblywoman Stender, who happily is substituting in today as a member of this Committee.

I will open the microphone to my colleagues from Bergen County, Vice Chair Bob Gordon, as well as my good friend and colleague from Hudson County, Lou Manzo; and then after that, call on a number of witnesses, starting with some of the scientists that we've asked to be here today, and some of the principle people from the environmental advocacy groups, to speak. We also have members of the industry here we want to

hear from. Obviously, a ton of people from the public. I'm going to try to limit this until about 9:30 today. So once the first few speakers go by, we're going to limit everybody who has something to say to five minutes. Absent the first several speakers, I'm going to encourage my colleagues on the panel to differ any questions, but rather to make notes, unless they absolutely feel compelled to do so.

Last but not least, again logistics, is if you had any designs on walking around and making a presentation, don't do that. Because what you have to say won't be recorded for posterity. We need to do that by the recording system that's in place. So please state your name and keep your seat when we get going.

And last but not least, we will not be voting today, but rather-- Is Monday's date February 26th? On February 26, at the 2:00 p.m. regular Committee hearing of the Environmental Committee in Trenton, we will at that point in time have this on the agenda, at which time I expect a vote of the Committee, and hopefully a favorable one -- not that I'm prejudging anything.

So with that, it's my honor and privilege to welcome Assemblywoman -- Assemblywoman? -- Senator Barbara Buono. Senator, I know that you did serve in the people's House, so that's not an insult to you at all, but you're very--

S E N A T O R B A R B A R A B U O N O: Yes, I did -- for a longer time than I'm in the Senate.

ASSEMBLYMAN McKEON: And we're proud of your leadership on this issue. And please make an opening statement.

SENATOR BUONO: Thank you, Mr. Chairman. And I'm very excited about this meeting.

I just wanted to open by saying that it's good to be back in Essex--

UNIDENTIFIED SPEAKER FROM AUDIENCE: We can't hear you in the back.

ASSEMBLYMAN McKEON: Okay. We're doing the best we can.

SENATOR BUONO: Can we turn it up?

ASSEMBLYMAN McKEON: You're speaking from the front-- Is that better?

SENATOR BUONO: Is this any better? How about if I hold it up like that, is that better? (affirmative response) Okay. That's all right. Okay.

It's good to be back in Essex County. I don't know if you know this, Mr. Chairman, but I have roots here. I grew up here. I was born here, I grew up here, and my family is still here. So it's good to be here.

ASSEMBLYMAN McKEON: Well, welcome back home.

SENATOR BUONO: Yes, thank you.

I was talking with Jeff Tittel before -- we were waiting for you, Mr. Chairman -- and I recalled that in 2000 I was a delegate at the Democratic National Convention. And I remember at that time, they gave us all a questionnaire. And on the questionnaire they asked us, what we're -- to list-- They gave us a list of potential issues. And they wanted us to choose among the list of what the three top priorities should be for the next President who was elected. And I wrote in "global warming." So I assume

that that would be on the list now. And I guess I was a little bit ahead of the curve; and you, Mr. Chairman and the Assembly Committee, are ahead of the Senate on this issue.

ASSEMBLYMAN McKEON: We're all, as a race, behind the curve, unfortunately; so we're going to make it better now, thanks to your leadership.

SENATOR BUONO: Well, this hearing comes on the heels of a sobering and powerful assessment from the Intergovernmental Panel on Climate Change -- it's the leading international network of climate scientists -- and by concluding for the very first time that global warming is unequivocal, it ends any lingering uncertainty regarding the existence of climate change on our planet. It has, in effect, transformed global warming from scientific debate to scientific fact. Indeed, the report underscores the need for a concerted effort to shift away from our unfettered burning of fossil fuels; to aggressively expand renewable, nonpolluting energy sources; and we need to support measures that invest in energy efficiency in order to reduce demand.

Here in the United States, we have to face up to the reality that while we represent just 5 percent of the world's population, we contribute one-quarter of greenhouse gas emissions. We clearly need to improve that ominous statistic. It is no longer a matter of choice. We don't want our children to be faced with the specter of leaves changing color at odd times of the year, which is already happening. I was in Millburn a few weeks ago, when we had -- maybe a month ago -- when we had that warm spell, and there were actually cherry blossoms blooming.

Confronting the threats posed by climate change will ultimately require national and international leadership. In the absence of Federal action, Assemblywoman Stender and myself realized that we needed to harness the State's -- and begin what we feel is a critical role, which we believe we need to play, developing initiatives that others can build upon.

A lot of people will ask me, "Well, what is New Jersey going to do to stop global warming?" Well, we know that New Jersey alone -- not even New Jersey and California together -- can't halt global warming, but we can have an impact as other states look to our successes to help guide their responses to mitigating the risks of climate change. This legislation represents a crucial step forward, fighting global climate change.

In the face of a stunning lack of leadership by the Bush administration, this State can not stand idly by. We can join California in showing that it is not only possible to significantly reduce emissions, but that it provides invaluable benefits, both environmentally and financially.

Mr. Chairman, I'm optimistic, given the Governor's Executive Order, that New Jersey policy makers will meet this challenge. And as a recent report commissioned by the British government -- the Stern Report -- concluded: "A commitment to mitigating the risk of climate change must be viewed as an investment, a cost incurred now so that we can avoid very severe economic and humanitarian consequences in the future."

Mr. Chairman, I look forward to working with you as this bill moves through both Houses of the Legislature, and hopefully it will speedily pass through both Houses so that the Governor can sign in the very near future.

Thank you for holding this hearing.

ASSEMBLYMAN McKEON: Senator, thank you again for your leadership. (applause)

We understand that you have a commitment, so we will, collectively, excuse you when that times comes. And again, thank you, and look forward to seeing you next Monday when we will call for a vote.

I'm now going to call upon Assemblywoman Linda Stender, the Assembly prime sponsor of this measure, to say a few words.

If you guys could help me with school funding, we'd all have microphones. (laughter)

ASSEMBLYWOMAN STENDER: Good evening, Mr. Chairman. Thank you very much, and thank you for all that are in attendance this evening on this very important--

ASSEMBLYMAN McKEON: I'm sorry. If this was Hudson, we'd all have two.

Sorry. (laughter)

ASSEMBLYMAN GORDON: And they wouldn't work.

ASSEMBLYMAN MANZO: And they wouldn't work. (laughter)

ASSEMBLYWOMAN STENDER: I'm going to keep moving right along here. And I want to-- In addition to thanking the Chairman for calling this hearing on this piece of legislation, I want to thank Senator Buono for her leadership in the Senate; and for being here this evening to speak to this very important issue, as she went through some of the compelling details and data. Because it certainly is ironic that in a month that we have been treated to the unwelcome taste of frigid, Artic

temperatures in New Jersey, that the IPCC, which is the International Panel on Climate Change, released its fourth assessment report.

The findings, however, are indisputable. Global warming is getting worse and human activity is to blame. The full report, which included data from thousands of experts worldwide, links human activity, specifically the burning of fossil fuels, to increased average global temperature with unprecedented levels of certainty. Average air and ocean temperatures are increasing, ice caps are melting, and sea levels are rising.

The report also examined the increasing intensity of hurricanes and tropical typhoon activity since 1970, predicting even more intense storms with larger peak winds and heavier precipitation associated with warmer ocean temperatures. More alarming still, warming will continue for the next three decades, regardless of whether our emissions are cut, due to a time lag or what some call *committed warming*.

I think one of the most compelling pieces of information, in addition to that report and so much other information that is out there that I have examined to date, is a map. And we have a copy of it up here on the front, up there on the left -- it's to my left. (indicating chart) It was released as part of a 2005 Princeton University study, "Future Sea Level Rise and the New Jersey Coast." Now, this study preceded the most recent assessment that just came out from the IPCC. But what it shows is that those darker areas are zero to four feet above sea level that are potentially submerged. The lighter areas, that are four to 11 feet above sea level, are vulnerable to flooding. And these are some of the most expensive and profitable areas in New Jersey.

So what we know from the most recent report -- that says that within this century that we will see sea level rise between seven and 23 inches -- that we have a real problem that we have to confront. At best, the entire coast of New Jersey will be subjected to more frequent flooding. At worst, virtually our entire coastline, as we know it, may be altered and destroyed.

The only question remaining is whether or not we take action to dramatically cut our global warming emissions and avoid these catastrophic effects. Well, some may argue that the costs associated with reducing emissions from all sources to pre-1990 levels are burdensome and would harm New Jersey businesses. I'm compelled to point out the unfathomable costs of allowing the worst effects of global warming to occur.

Here in New Jersey, our coastal region supports a $16-billion-a-year tourism industry, employing hundreds of thousands of residents. Atlantic City, single-handedly, draws 37 million tourists a year. Our commercial fishing industry is valued at over 100 million a year, and our maritime industry centered at the Port of New York and New Jersey is valued at 50 billion a year.

These are real dollars and a significant part of New Jersey's economy. If we lose even a small percentage of our coastal region, these industries will be devastated. To say the least, the cost of reducing our emissions now is insignificant, I believe, compared to the loss of the coastal region. The bottom line is this: If we continue to ignore the effects of global warming, we put ourselves at risk of catastrophic changes to New Jersey's environment. That doesn't even speak to the issues of what happens because of droughts and the effect on our water supply, or the

effect of salt water migrating into our freshwater system; nor does it really consider the impacts on our species and the wildlife that rely on so many of these areas for breeding grounds; or even to the issue of how disease is spread and how that will be affected by how the microcosms are affected by the climate change.

By implementing A-3301, the Department of Environmental Protection will establish a greenhouse gas emissions monitoring and reduction program to reduce the global warming emissions produced in New Jersey to below 1990 levels by 2020. It's approximately 20 percent below current levels. The legislation further requires the DEP to assess New Jersey's progress in the future and empowers the agency to adopt additional regulations as necessary. By doing so, New Jersey will become a national leader in the effort to save our planet from the devastating consequences of global warming.

I do believe that we will continue to see this movement occur. While I think it's unfortunate that we are now looking at states taking action because the Federal Government has failed us on this topic, we are going to have to have a national solution. But we can't wait for the Federal Government to catch up to us. We have to, I believe, take action now. And ultimately, it's not just about a national policy and internationally; it's also going to rely on each of us -- that we're going to, as individuals, have to take responsibility for fighting global warming in our everyday lives, and think about how we consume energy and how we can work to make sure we leave a healthy environment for our children and our children's children.

Thank you, Mr. Chairman. (applause)

ASSEMBLYMAN McKEON: Thank you, again, for your leadership.

And I'm going to -- not that I want to keep him from getting an applause line, God knows he deserves it. But if the -- as we speak today, we'll get along quicker if we can avoid any kind of reaction like that, as much as it was deserved, Assemblywoman.

Assemblyman Bob Gordon, our Vice Chair, if you'd say a few words.

ASSEMBLYMAN GORDON: Thank you, Mr. Chairman; and they will be very few.

I simply want to commend the sponsors of both chambers for their leadership on this issue, an issue that could be the most important that our country faces. And I thank the Chairman for holding this hearing. Like many of you, I was very troubled by what I read in the recent report on climate change. But what I do remember from that report is, that while it is not too late to make the changes that are required, we are getting close to that point. And I hope that for New Jersey the first step will be to adopt the legislation that we're holding this hearing on tonight.

Again, I thank the sponsors for your work in this area and look forward to working with you in the months ahead.

Thank you very much.

ASSEMBLYMAN McKEON: Thank you, Assemblyman, and you're one of the hardest working members I know. And as diligent as you are, I also think that Assemblyman Manzo fits in that category, and I know about his dedication and hard work with the environment and many other issues.

Assemblyman Manzo.

ASSEMBLYMAN MANZO: Thank you, Assemblyman.

I, too, want to commend the two sponsors on the bill. But I'd also want to note that it seems that no matter what statistics are out there, or information provided, there are so many who are opposed to the theory that global warming is affecting this earth that's it almost unbelievable that they will continue to just say, "You can deal with this tomorrow, deal with this tomorrow." I honestly think, Bob, we've passed the point where there's not going to be some impact for the actions that we haven't taken.

We need, Mr. Chairman, to start looking at some of the bills we've had on for the last three years that reduce emissions in as many areas as possible, to coincide with what the two sponsors of these bills have done. In addition, we need to see what relationships we have with other states and the pressure we can bring, as a state, to those neighboring states to reduce their emissions so people aren't simply bypassing New Jersey businesses to do business in other states. That's vital to this, otherwise our effect will have a negative effect.

And in addition, I'm proud to say that what we're really doing in New Jersey, by moving forward with this consideration and possible passage of this bill, is to take what the world has needed -- a leadership position. Someone to stand up and say, "We finally need to do something." Everybody seems to be looking around waiting for somebody else to take the step forward, and they're not. And there's too many people who have been idle; too many nations which have stood idle on this issue. And unless we all start moving forward, it's going to be too late.

So with that, I hope that we, as a State, can make a statement; we, as a State, can become a leader on this issues. And we, as a group and as a Committee, can begin to entertain, in the next few months, all the bills that have been in the Legislature that finally can begin to address this issue, bring back -- fall back on the emissions that New Jersey issues. And something very important, which I didn't even realize until tonight, is that we're making great strides in solar energy for homes in New Jersey. We've got a great program. I think this Committee should get to the forefront in getting that information out all over this state; and we can become a leader, as a matter of fact, in solar energy alternatives for the nation. And that should be something that we do well, we give tax breaks for it. Something dearly needed in New Jersey; and it's an issue which we should do.

I look forward to the many experts who will testify tonight. And of course, the folks here, this is a good turnout -- put the pressure on, keep the pressure on at all levels of government. Keep the pressure on at all panels, at all forums. Because without the public support behind this issue, it will falter and it will go nowhere. (applause)

Thank you very much.

ASSEMBLYMAN McKEON: Thank you, Assemblyman.

I'm just going to take two minutes to add my own thoughts. And then after that point, I promise you we're going to do a lot of listening beyond the talking that you've now heard.

First and foremost -- in part, beyond the convenience, obviously, in wanting to show off my town a little bit -- if you don't already know, the world changed from our Main Street here in West Orange, as it's the home of the invention factory of Thomas Edison. So I thought, in light

of, I guess, what started it all as far as the invention of the electric light bulb, there would be a nice synergy in maybe ending it all, or at least changing the world, also beginning here from West Orange -- the home of Edison -- where we can take the first important step in standing up and being leaders.

I guess I'm not a very partisan person, but nonetheless what I have to say will sound a little bit that way -- but the facts are the facts. It's a shame that we have to have this hearing tonight. Because the fact is, is that the leadership on this issue should be coming out of Washington. And instead of dealing with perverse interpretations of the Clean Air Act, we should be working together to prevent this continued suicidal path that this country and this world continues on. I rue what the scientists who must have -- no longer have anything to do, as we've all figured out that tobacco is hazardous to one's health -- who have now found jobs to tell us that there's no such thing as global warming. (laughter)

It is just incredible to me, and sad, that we are at the point that we are at. With that having been said, notwithstanding the Governor's executive order -- and I applaud his leadership -- we have to all recognize it's all easier said than done. And because of the fact that there isn't a national or a global approach; and even with issues such as RGGI and our ability to try to deal with that regional approach, there's problems with that. There's problems in disincentivizing, with the RGGI program, cogeneration, by way of example. But as it relates to what we're going to embark upon now, we have to do that in recognizing that the New Jersey independent energy producers-- They shouldn't have to be at a competitive disadvantage if, when they're auctioning off, at PJM, the energy -- that the New Jersey

coproducers can't do it, and they're just going to do it next door in Pennsylvania. That's wrong when we have to work through that.

We also have to appreciate that New Jersey needs 350 megawatts a year in growth. And that's just based on less than 2 percent of growth of use each year. Now last year, new renewable energy only produced 45 megawatts. So we have to think about: Where is it going to come from?

It's going to be more expensive. Already, we're the fourth most expensive place to purchase industrial energy, and the 11th among the 50 states from a commercial perspective. And obviously, that expense is going to again come back to the consumer.

So we all can stand here and understand what we need and what we have to do at long last, and we can all applaud ourselves for the leadership that is being shown. But we also need to understand the consequence of that and the consequence arriving from the fact that there isn't a national or regional approach, and do this with an open mind and understanding that DEP needs to be given some specific direction to deal with the practical concerns that we'll have when we go forward with this approach. But the bottom line is, the suicidal path that we've on has to stop. The madness has to stop here. And again, where the light bulb was invented, hopefully this will be the beginning of that change.

So with that, I'm going to call up a triumvirate of three very learned individuals. So I'm going to ask one of them to grab an extra chair, and for the three of you to come up together: Dr. Michael Oppenheimer of Princeton University; Dr. Alan Robock of Rutgers; along with Dr. Jonathan

Adams of Rutgers University -- three of the foremost experts in the country, if not the world, as it relates to environmental science and global warming.

I'd introduce you all by name, but I'd ask that you, for the record, state your name for the people and the public.

J O N A T H A N A D A M S, Ph.D.: I'm Jonathan Adams. I work at Rutgers University.

ASSEMBLYMAN McKEON: Welcome, Dr. Adams.

DR. ADAMS: Thank you.

Well, I started off by writing a much more broad-ranging talk, and I looked at--

UNIDENTIFIED SPEAKER FROM AUDIENCE: Can't hear.

DR. ADAMS: I started off by writing a much more broad-ranging talk, and I looked at the two talks that my learned colleagues had written and realized there's a lot of overlaps. So I cut it down a lot, just to some very basic points. And my perspective tends to be from the past, looking at the history of the last two million years.

(begins slide show)

I think we should be having a picture in there. All right. There should have been a picture of -- there we are. So this is where some of our best information on the history of the last million years or so comes from, from ice thaws from the earth's poles. And what they show is that levels of carbon dioxide and methane in the atmosphere have fluctuated, but we're now into unknown territory. We've exceeded any levels of these greenhouse gases that have occurred in the last 650,000 years.

Next slide please. Okay, next slide.

In fact, we're journeying back in geological time, millions of years, to a much warmer world -- a world that we don't really understand very well; a world, for instance, with much less ice at the poles, with much higher sea levels, with quite different climate patterns.

Next slide. Okay, next slide, please.

And year upon year, we see the CO_2 level going up relentlessly. So this is one set of long-term observations -- the longest set of observations -- that's been going since the late 1950s.

Next slide.

Now, there are various possibilities for what the time course of the CO_2 increase could be. It looks like the way things are heading, that by the end of the century then, we're going to be back in the world of maybe 30-40 million years ago in terms of greenhouse gases -- a very strange, unknown world. But we do have some capacity to alter the course of things. If we want to, we can reduce the amount of greenhouse gas emissions.

Next slide.

And what this rather complex diagram shows, essentially, is that if we alter the amount of greenhouse gases, the amounts of, well, radiative forcing -- so that's the the heat trapping; global temperature -- that's the really important thing -- this will alter correspondingly. So it's not an all-or-nothing thing. There are different grades of the greenhouse effect that we have the capacity to take some sort of control over, to alter.

Okay, next slide.

So how much warming you get depends exactly on how much greenhouse gas is put into the atmosphere. You put less greenhouse gas in

the atmosphere, you get less warming and all the intendant effects that we fear -- storm intensity, heat wave intensity -- and also less sea level rise.

Next slide.

And it really is looking, despite what some skeptics say, that the predictions are spot-on. In fact, they were rather conservative predictions. If you look at the red line here, this is how things are actually going, in terms of temperature and in sea level rise. And these are the predictions that the IPCC was making back in 2001. We're actually at the high end of their range of predictions. So this is actually a pretty worrying sort of scenario.

And I'd like to emphasize again that we really are journeying into unknown territory. We don't know what surprises there are out there, as we journey back into the world of the deep past, into the hot world of the Tertiary, as it's known.

Okay, next slide.

And so, personally, from my point of view as a person rather than purely as a scientist, I feel that going for a cautious path, trying to get the greenhouse gas emissions reduced to at least some extent, makes good sense. We get a return from whatever we do, whatever reductions we bring about, even if we cannot stop the rise completely.

Okay, I think I'll leave it there.

ASSEMBLYMAN McKEON: Thank you, Dr. Adams. (applause)

A L A N R O B O C K, Ph.D.: My name is Alan Robock. I'm a Professor at Rutgers University in the Environmental Sciences Department. I have a Ph.D. in meteorology from MIT, and I've been working on this for

the past 29 years, doing climate research. And my work has been involved in all four of the IPCC reports, including -- by writing some of the chapters and also reviewing them.

Before I begin, Assemblywoman Stender gave a nice summary of the IPCC report, which I was going to do. So before I begin, I just wanted to say something about the bill which you're about to pass. I think there's a -- I'm not sure if you'd call it a mistake -- but a clarification that's needed. You define greenhouse gases as including water vapor. Now, while it's true that water vapor is a greenhouse gas and it's the most important greenhouse gas, it's not reasonable to do inventories of water vapor emissions or try to control water vapor emissions. The atmosphere controls the water vapor. If you have too much, it rains; if you have too little, you have evaporation.

Water vapor is part of the climate system, and it's involved in a positive feedback. So when it warms, you have more evaporation and more water vapor, and that makes it warmer still. But that's controlled by the climate system. So it's not something we should worry about -- controlling emissions. We can't control the concentration. We should control the other gases, which then affect the radiation, but not water vapor. So I just hope that you can clarify that when you do the bill.

ASSEMBLYWOMAN STENDER: Thank you.

ASSEMBLYMAN McKEON: Thank you, Professor.

(begins slide show)

DR. ROBOCK: The IPCC issued a report in Paris on February 2.

The next one.

And in the *Summary for Policymakers*, they used these different terms to categorize what we know.

If you'd go to the next one--

What's new is that -- before we said it was likely that humans are causing global warming; now we say it's very likely. That means we're sure at more than a 90 percent level. And so what the IPCC said is, "Most of the observed increase in globally averaged temperature since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations." Those are gases like CO_2, methane, and so on.

Next.

And then they use this evidence, "Warming of the climate system is unequivocal," -- that means 100 percent. We know that there is global warming. There's no controversy anymore about our -- is urban warming affecting it, for example. And it's not just global averaged air temperatures, but it's ocean temperatures, melting of snow and ice, and increased sea level. And human influences are seen in things -- not just global average temperature, but ocean warming, continental average temperatures, temperature extremes, and wind patterns.

Next.

So here's a graph of the global average temperature for the last 120 years.

If you go to the next -- 2005 was probably the warmest year of the past 125 years, and actually it was probably the warmest year of the past 2,000 years. But this is when we have data and 2006 was not quite as

warm; 1998 was very warm, but there was an el Niño that year; 2005 was warm without an el Niño.

Next.

The first part of the 20th century, the warming was mainly natural, because there was a lot of volcanic eruptions at the beginning of the period.

Next.

Then it didn't warm very much, because of what we call *global dimming*. The industrial revolution after World War II put a lot of particles in the atmosphere. But for the last 30 years, these greenhouse gases have dominated, and we have seen a huge warming in the last 30 years.

And before, we knew about global average; now we can look at every continent and we see the same thing. The pink is what would be simulated with all the causes of climate change, and the blue is simulated only with natural forcings -- volcanoes and solar variations -- and the black is what happened. So on every continent, not just globally averaged, we see the only explanation that makes sense is that it is caused by humans.

And the IPCC said, "It's extremely unlikely that global climate change of the past 50 years can be explained without external forcing." I mean, it can't just be random.

If we look back a thousand years -- this is the famous hockey stick diagram that shows for the last 150 years there's been huge warming; and the IPCC and a National Academy of Sciences report last year validated this. They said, "the warmth of the last half century is unusual in at least the previous 1,300 years. The last time the polar regions were

significantly warmer than present for an extended period, reductions in polar ice volume lead to 4.0 to 6.0 meters of sea level rise." That's 20 feet.

Next.

And average Northern Hemisphere temperatures during the second half of the 20th century were very likely higher than any other 50-year period for the past 500 years.

Next.

So we can look at maps of not just global average, but where it's going to warm. In the decade 2020-2029, no matter which of the scenarios that Jonathan showed we follow, it will be a little bit warmer, but it will be almost exactly the same. And you can look at the distribution of the global average here. But by the end of the 21st century, it makes a big difference. If we pollute -- business as usual -- it will be much warmer -- the red and the purple are very warm -- than if we put a lot less into the atmosphere. So even though tomorrow won't make any difference, it's very important to start now so we have an effect by the end of the century.

And we can follow one of these paths. And this yellow curve is the one that Assemblywoman Stender mentioned, which is the commitment. We'll have a little bit of warming, even if we stopped emitting today, which isn't going to happen.

Next.

Precipitation also will change. This is at the end of the century. Everything blue will be much wetter, and everything red will have drought. And so if we don't do anything, we'll have huge amounts of precipitation, wetness in the high continents; and drought in Europe and parts of the United States.

Next.

And hurricanes will be stronger. Hurricane Katrina is -- the science is clear. Hurricane Katrina is an example of what will happen more frequently in the future if climate warms.

Now, the Union of Concerned Scientists had a report on: How can we explain this? And so what they did is, they took our tri-state region and said, if we have a lower emission scenario -- if we emit less, this is where we're going to move to in the future. So by the end of the century, we're going to have a climate here like they have in the tidewater area of Virginia. And if we don't do anything, we're going to have a climate like they have in Georgia and South Carolina. Now, none of us goes there in the Summer, but it's going to come to us if we don't do anything.

Next.

So sea level will also rise, and here is a projection-- Here is how sea level has risen, and a projection for the future. But this doesn't include new information we have about Greenland melting, that it might make it go even faster.

Next.

So this is a map similar to the one that Michael did, but this was done by EPA about five years ago, and it shows the red is five feet of sea level rise, and the blue is 10 feet.

Next.

So I took this interesting area here, which is also on your figure over there. And if you go--

Next.

What is this? Well, we all know this is Newark Airport, and this is the New Jersey Turnpike. And so this shows -- the area in red is the area that we'll--

ASSEMBLYMAN McKEON: It's a good thing we're selling the Turnpike. (laughter)

DR. ROBOCK: Yes, that's right. Yes, but imagine what the tolls will be.

ASSEMBLYMAN MANZO: We ought to sell it to SeaWorld now. (laughter)

DR. ROBOCK: Imagine what the tolls will be? You'll have to have a ferry. (laughter)

Next please.

So I'd just like to end with this picture, shown in the Washington subway: the Hummer "Does well at the poles," and the graffiti artist added "melting." So next -- now we think this is very likely.

Thank you. (applause)

ASSEMBLYMAN McKEON: Thank you very much.

Doctor.

M I C H A E L O P P E N H E I M E R, Ph.D.: Thank you for inviting me here tonight. My name is Michael Oppenheimer. I'm a professor at Princeton University. And I've also been working on this issue, like Alan, for decades it seems; and it's gratifying to see the level of attention and seriousness that's indicated by the interest of this Committee and by this piece of legislation.

I'm going to talk about two aspects of the issue: One from a scientific point of view and a little bit from a political point of view, on why

it's important to act, and why it's important to act now, and why it's important to act seriously.

First, let me focus a little bit on New Jersey, as Alan just did. As he mentioned, my colleagues produced a report two years ago on the effects of sea level rise on New Jersey, and we looked rather carefully at the areas of the state that were exposed. Sea level rise is a tricky thing. In the last century, globally, the sea level rose about seven inches. Here it rose about twice as much, about 15 inches, because of local geological factors. And that may not seem like a lot, but on a typical East Coast beach, if you raise the sea level a foot, you take away 100 feet due to submergence and erosion. And that's the process that's going on here. And the only way to fight it is by dumping more sand, building more seawalls -- which are undesirable for a lot of reasons. And as I've learned fairly recently, the sources of sand off the Jersey Coast are disappearing fast, because they're being used by us, and they're not going to be around in accessible, affordable amounts for us to be restoring our beaches forever. So this is a very serious long-term problem. I'll return to it in a minute.

There are two other problems I think of when I think about New Jersey and warming. One is the heat that Alan mentioned. And it's not just a matter of comfort. Heat kills. And we've had some unfortunate experiences, in the last few years, starting with the heat wave in the Midwest in 1995, which killed 800 people; and winding up with the heat wave in Europe, in 2003, which killed 40,000 people -- 40,000 people dead in advanced, industrial places just like this one, because it got too hot. Analyses have been done which suggest that, while that heat wave probably would have happened anyway, its intensity was probably boosted by the

greenhouse gases in the atmosphere. We have to be prepared for those kinds of episodes. But just like our preparations for Hurricane Katrina, I can promise you they won't be enough. A preferable approach is to reduce the risk, reduce their likelihood in the future. The only way to do that is to reduce the amount of greenhouse gases coming out of tailpipes and the smokestacks of power plants and factories.

The second thing I think about, when I think about New Jersey, unfortunately, is flooding. You have a tremendous amount of inland riparian flooding here. I never understood totally why it happens; you have a convergence of a lot of rivers in a small state. But unfortunately, the risk of flooding is bound to increase in the future. Why? The atmosphere is probably going to become wetter. That moisture overall is going to manifest itself in terms of more, very intense precipitation events, more gully washing rainstorms -- and those are just the kinds of rainstorms that bring about flooding. When you get not a half an inch or one inch in a day, but where you get two, three, or, as we've seen recently, even four inches or more, that's a problem we can't handle successfully now. It's only going to get worse and much more expensive in the future. And you can ask the insurance companies what they think they're likely to do in that event.

The third area, and the one I'm most concerned about, not just in New Jersey but the world as a whole, is sea level rise. And let me put a fine point on something that the two previous speakers have noted, because I think it helps us think about where we have to go with this problem. The recent IPCC report, of which I am a co-author, indicates that the last time Earth was about as warm as it is today -- a little bit warmer -- that the two major ice sheets were smaller -- Greenland ice sheet and the West Antarctic

part of the Antarctic ice sheet. In fact, not only were they smaller, but sea level was somewhere between 13 and 20 feet higher than today -- 13 and 20 feet.

Now, if you ask yourself how warm would we have to get to return to those conditions, the answer, unfortunately, is: not very much warmer than today. The poles were about 5-9 degrees Fahrenheit warmer than today, at the time that the ice sheets were smaller and sea level was about 15-or-so feet higher. And the poles warm faster than the rest of the world, or projected to in the future. So by my reckoning, it would only take a warming of a few degrees Fahrenheit, maybe only 3-4 degrees above what we are already at today, to lose big chunks of the ice sheets and to bring sea level up by something of the order of 15 feet. That's an outcome we cannot tolerate. It may not happen very fast. It may stretch out over a few centuries, or even longer. There are some who say it would take thousands of years. The reality is, we don't know, and you cannot take a risk of that kind of outcome happening.

So in order to cut the risk, in order to avoid a warming of 3 or 4 degrees, we would need to start serious action today. And that's why, rather than being a pessimist, I'm optimistic. I see California having acted. I see the RGGI states. I see this state having a very serious and important proposal in front of it today. By the way, I live in New York; I just work here. I would love to see your state get out ahead and embarrass my governor, who has not yet come forward and said what he's going to do about global warming in a detailed way.

So let me just say that what you're doing is at the very cutting edge of a very important movement. And in this case, first movers may be

winners. This may wind up opening up economic opportunities for your state that will otherwise be gradually foreclosed as others get ahead of you in developing the new opportunities and the new technologies. This is going to be a world which is much more energy efficient, much more efficient in transportation, much less dependent on fossil fuels. The sooner we get there in New Jersey, the better for all of us.

Thank you. (applause)

ASSEMBLYMAN McKEON: Thank you, Professor.

Again, thanks to the three of you for your work on behalf of humanity. Although we're not going to ask a lot of questions -- just because of this special panel, if anybody has any questions?

Assemblyman Manzo.

ASSEMBLYMAN MANZO: I wanted to question on, and get the answers -- because I think this is important -- of what skeptics have been saying: basically is that we've had global warming before. And I know you point to that chart which shows that you can attribute these characteristics to human involvement. What is it in the past that has created global warming, in centuries ago?

DR. ROBOCK: The changing shape of the Earth's orbit -- the so-called *Milankovitch theory* -- has changed the amount of sunlight that shines in the Summer, over 20,000-, 40,000-year cycles. And that's well understood. So if there's less sunlight in the Summer than we have now, when it snows it won't melt and you'll build up ice sheets. And as the Earth's orbit becomes more elliptical, more circular, as the axis tilts a little bit, you have these cycles, these ice age cycles. And that's well understood.

And we know why it was warm 100,000 years ago -- because of these Milankovitch cycles.

If, in addition, we had had excess CO_2 from humans, it would have been even warmer than that. So there are multiple things that cause climate change. There are these natural things, and humans also cause it. And now, for the first time in the history of our planet, humans are the strongest thing causing climate change. These natural things are much slower, and we understand them well.

ASSEMBLYMAN MANZO: And we're not at one of those cycles, I assume?

DR. ROBOCK: Well, we are in an interglacial now. It's warmer now than it has been. For the last 10,000 years, it's warmer than it was for the last 100,000 years. So for the last 10,000 years, there haven't been ice sheets covering North America; 18,000 years ago there were ice sheets covering North America. They melted. And for the last 10,000 years, we've been in an interglacial. But we understand that, and humans are making a super interglacial, an Anthropocene -- making it much warmer than it was before.

ASSEMBLYMAN MANZO: And even though we call it *global warming*, what's known is that following the warmness it will obviously force the climate into a deep freeze.

DR. ROBOCK: No. For the foreseeable future, it will get warmer. And if there are a lot of big volcanic eruptions, that will block out the sun and cool it for a while. Gradually, as the Earth's orbit changes, we'll go into other climates. But that will be thousands of years from now. So

for the foreseeable future, humans will be the dominant cause of climate change. They'll be stronger than the natural causes.

DR. OPPENHEIMER: Let me make a comment.

It's also the case that one of the important factors here is: carbon dioxide, once it's emitted, lasts for a very long time in the atmosphere. Some of the carbon dioxide from the beginning of the industrial revolution is still there, coursing through our lungs right now. Some of the carbon dioxide we remit today, about 20 percent of it, will still be there more than a thousand years from now. We're making an irreversible change, and it's plausible that we will, in some sense, virtually permanently change Earth's climate.

You should also know that this period, as Alan said, is a warm period. You have to look back tens of millions of years, probably, before you get to times when the Earth was as warm as it's about to become if we don't limit these emissions. And that -- Earth had no ice caps, the sea level was hundreds of feet higher -- hundreds of feet.

DR. ROBOCK: If we double CO_2 from pre-industrial levels, it will be at the highest level it's been in the last 30 million years.

ASSEMBLYMAN McKEON: I want to note that--

Do you have a follow-up, Lou?

ASSEMBLYMAN MANZO: No.

ASSEMBLYMAN McKEON: I want to note that Ned Raynolds is here, of the Union of Concerned Scientists, and he was kind enough not to move close to the esteemed panel.

So, is it Dr. Raynolds?

N E D R A Y N O L D S: No, no it isn't.

ASSEMBLYMAN McKEON: Mr. Raynolds, if you could give a presentation also, because you're kind of part of this group.

MR. RAYNOLDS: Thank you, Mr. Chairman.

It's a great honor for me to be here, actually, in the company of these three esteemed scientists. I'm not a scientist myself. A practitioner of public policy, I'm the Northeast Climate Policy Coordinator for the organization Union of Concerned Scientists, which is a 38-year-old national organization dedicated to ensuring that the best available science is used as a basis for public policy. And so in that role, the kind of widespread recognition and acceptance of the science of global warming that I've already heard here tonight has been -- well, let's say it's a day that my organization, and certainly these gentlemen, have been working toward for a long time.

As several members of the Committee have said already -- Representative Manzo is right; Senator Buono referred to it -- the momentum of the global climate system is so great, so strong-- And Dr. Oppenheimer just referred to the fact that carbon dioxide, once emitted, stays in the atmosphere for 100 years -- that even if we could magically stop emitting carbon dioxide tomorrow, stop our burning of fossil fuels -- of course, we can't -- we would still, as you have shown by the graphs, see several degrees of warming over the next several decades.

However, a couple of years ago my organization, the Union of Concerned Scientists, undertook a coordinating role in a study called "The Northeast Climate Impact Assessment," and a copy of that -- each of you have in front of you, as I distributed it beforehand.

ASSEMBLYMAN McKEON: Yes, thank you. We all have that.

MR. RAYNOLDS: And the goal of that was to bring all of this sort of global science down to the local level, down to the level of where we live here in the Northeast. And it was to show, basically -- to bring that best available science, and the kind of tools that had previously been available only in these sort of global models, global computer models, down to the regional level, and answer two questions: First of all, what are the impacts that we've seen over the past decade or so that everyone's talking about these days? And what kind of changes can we expect, no matter what, in the next couple of decades? But more importantly, what difference would it make -- how much power do we have left to effect our future here in the Northeast over that mid- to longer-term?

And the answer, as Dr. Robock showed in that graph -- he said it matters a lot. We have still a lot of power left. Our choice matters. And that's why we subtitled the study: "The Changing Northeast Climate: *Our Choices, Our Legacy*." And basically, we tried to come up with sort of the starkest way we could show what difference would our choice make. And as Dr. Robock showed, the transformation of our climate here in the Northeast, over the next century, will be either from what it is today to that of something like the Tidewater Virginia area; or if we remain, as a world, on the global emissions path, on -- that fossil-fuel dependent, we will, here in the Northeast, end up looking and feeling like Georgia and South Carolina.

So I want to thank you very much; applaud Governor Corzine, applaud you -- Mr. Chairman and your Committee -- for taking the

leadership role that you have, for acting so promptly to transform Governor Corzine's recently announced executive order and goal, of reducing emissions 80 percent by 2050, from an executive initiative to a law of the State of New Jersey; for leaping to the forefront of leadership in the Northeast, as has been referred to; and congratulate you and thank you for this event, and thank everybody for coming out tonight.

ASSEMBLYMAN McKEON: Okay, thank you very much.

And again, Doctors, thank you for your scholarly and learned testimony, and your work. And keep it up, we need you.

Thanks very much.

I would next like to call up -- and it will be the only other person I will call by themselves, only because she deserves the respect, as does her entire organization, who had a lot to do with organizing today's event of -- the Environment New Jersey. And you see a lot of their volunteers that are here today helping out.

Suzanne Leta Liou. Suzanne.

Suzanne, thank you again. I know how hard you've worked and are working on this issue. So we appreciate all the environmental advocates, but in this instance, particularly you.

S U Z A N N E L E T A L I O U: Thank you very much.

Is this on? (referring to PA microphone)

ASSEMBLYMAN McKEON: I didn't say you could speak. I just said thank you. (laughter)

MS. LETA LIOU: How about this? Oh, great.

Thank you very much, Chairman.

I do very much relish the opportunity to speak today. And I think it's pretty clear, just based on the number of people in the audience today, how much broad, overwhelmingly public support there is for this legislation. And so I want to commend all of you for holding this hearing; and particularly Chairman McKeon for chairing this hearing. And for Assemblywoman Stender, who really took a leadership role by introducing this legislation -- now, almost a year ago -- I can't thank you enough. So I'm looking forward to moving forward and passing this legislation as soon as we possibly can.

But rather than talk as much about the problem of global warming, which I think you've heard quite a bit about -- and I'm very happy that the scientists could come and speak to you today -- I want to talk about the solutions. Because I think that is what is really going to be an essential result of this legislation. And those solutions, they grow our economy. So I want to talk about that too.

The first thing to understand is that we have solutions available right now to achieve the reductions in this bill. The solutions will grow our economy because they'll promote investment in clean, renewable energy technologies; they'll protect consumers from rising energy prices; and they'll preserve the environment, as you know, in a multitude of ways.

So I'm not going to talk as much about what this legislation does. As you know -- as Assemblywoman Stender referred to it already -- it requires mandatory reductions of all of the state's global warming emissions from all sources to below 1990 levels by the year 2020. Again, that's about a 20 percent reduction from current levels, and that is what scientists say is necessary to achieve to avoid the worst effects of global warming -- that 20

percent below current levels by 2020, 80 percent below current levels by the year 2050.

So let me talk a little bit about the State's current policies that put us on the right track -- the building blocks that New Jersey already has that put us on the right track to achieve the reductions in this bill; and then give you a sense of the multitude of additional solutions we can use to achieve the goal. Again, solutions that bring benefits to our economy, benefits to our environment, and benefits to consumers.

Let's take a few steps back and let me just clarify where our global warming pollution is coming from in New Jersey. And I'm referring specifically, in this point, to carbon dioxide, which is the leading greenhouse gas. So first, half of our pollution -- 52 percent -- comes from transportation, and that's primarily cars and trucks. Sixteen percent of our pollution comes from in-state power plants that generate electricity. We also import about 20 to 30 percent of our electricity from out of state; and that's, in large part, a lot of dirty coal-fired power plants, and mostly from Pennsylvania. And then finally, 22 percent of our pollution comes from residential and commercial heating, and another 11 percent comes industrial facilities.

And while pollution from heating has stayed relatively constant and pollution from industrial facilities has actually declined in recent years, transportation and electricity are projected to grow significantly in the next two decades. And in fact, without decisive action, and even with all the things New Jersey has already done -- which is quite a lot -- our emissions are still projected to grow by 10 percent in the next two decades. So it's

critical that we take action now. Because again, we have to reduce our emissions from current levels to get on the right track.

So the other thing I'd like to talk about is, if the approach that the legislation takes -- it's comprehensive. And that's the approach that we need to actually deal with this problem. It allows the DEP the flexibility to address this issue by tackling many different sources in many different ways. And the legislation sets the mandate, it sets the emissions reduction, while the DEP develops the plan and the policies to achieve it.

So New Jersey is ready to take the next step. We can do this, and we already have the building blocks in place to achieve it. So let me talk about the first building block, which is what people have been referring to, which is the Regional Greenhouse Gas Initiative. That's an agreement between 10 northeastern states to cap and trade global warming pollution from power plants -- specifically power plants -- to 10 percent below 2009 levels by the year 2019. And that's a real contribution to the goals of the legislation before you today.

And what's also important is that, as we move forward to tackle global warming pollution from electricity, we can't allow other states to undermine or override our progress. As I said, New Jersey imports about 20 to 30 percent of our electricity from out of state. And again, that's from a lot of coal-fired power plants in Pennsylvania. We're also threatened by proposals for new dirty coal-fired power plants that TXU has proposed, a Texas company, to be built in Pennsylvania. If those plants are built, they will offset all of the emissions reductions in the Regional Greenhouse Gas Initiative -- 10 states. Let me repeat that: If two to three conventional coal-fired power plants are built in Pennsylvania, they will offset all of the

emissions reductions in the original Regional Greenhouse Gas Initiative. So it is essential to tackle emissions both within our state and from out of state.

What's good is that we can do that. New Jersey has the tool to do that in place, and that's an emissions portfolio standard. And put in simple terms, it's just a requirement to cap emissions from all of the electricity that's imported into New Jersey, and we can do that right now. And that's one critical tool that the Legislature can take.

So let's, next, talk about energy efficiency. Energy efficiency, I think for a lot of people -- they really don't understand what that means. And the best way to describe it is: tools that make sure we use less energy by doing the same thing. So it's everything from energy audits, to incentives, to purchasing energy-efficient appliances, to financial assistance to retrofit power plants to make them more efficient. And energy efficiency is key to reducing electricity use, and it also saves consumers a lot of money. It's actually a boon to consumers in two ways: Because first it just reduces the amount of electricity used, so you pay less on your utility bill, but it also reduces overall demand, which reduces the overall price of electricity. And the State's energy efficiency programs have been very successful. They actually saved enough electricity to provide the annual electricity requirements, just in 2005 alone, to 50,000 New Jersey homes. And overall, since the program started, they've saved enough electricity that's the equivalent of a 450-megawatt power plant. That's a mid-sized power plant. So they're incredibly successful.

But our current programs are only a glimpse -- only a glimpse of what's possible with energy efficiency. Just based on the numbers that

we've done, we have the potential to reduce our energy demand by 10 percent below current levels by the year 2020. We have incredible potential for energy efficiency.

The third building block is New Jersey's clean energy standard. It is one of the best standards in the nation, and it requires that 20 percent of New Jersey's electricity comes from clean, renewable sources like wind and solar by the year 2020. And it has truly created a burgeoning solar industry, as Assemblyman Manzo referred to earlier. Five years ago, we had six solar energy installations in New Jersey; today we have more than 1,800. We also have the first utility-scale wind facility in New Jersey, right in Atlantic City, and it's incredible. If you haven't seen it, I really recommend that you do.

But that's just the start. Again, that's just a start. We can meet and beat and further expand clean energy in this state like we've never seen before. A recent study from the BPU found that New Jersey's offshore wind potential could offset all of the fossil fuel and nuclear plants in the state. It's incredible what the potential is for offshore wind.

New Jersey also has the potential to truly be the Saudi Arabia of solar energy. We have a hundred solar energy days a year. We have millions of rooftops. And we can achieve this clean energy future with the right policies in place. Just a few ways we can do that are to renew and double the funding for our State's Clean Energy Program. We can require developers to provide solar installation as an option for all new homeowners. We can move forward with the construction of a large-scale, offshore wind pilot project, and we can set statewide minimum energy efficiency standards for building codes and appliances. And in fact,

Assemblyman McKeon has introduced building code legislation for efficiency already.

And the fourth and final building block that we have in place is the Clean Cars Program. It was passed in 2004 by the State Legislature, and it requires that an increasing percentage of zero-emissions and low-emissions vehicle are sold on the road in New Jersey. It has already been adopted by 13 states across the country, and it's a great head start to reduce our global warming emissions from cars and trucks. And we need to use that same kind of multitiered approach, that we've done with electricity, with transportation.

And we can wait on Congress to improve fuel economy standards, and I hope that they do. But at the same time, we have many tools right here at the State level to improve fuel efficiency. One of them is to establish a cost-neutral *feebate* program that provides -- it charges disincentives, or fees, to new purchasers of the worst gas guzzlers; and provides incentives, or rebates, to the purchasers of the best fuel-efficient cars. So we can do a feebate program, for example. And we already know that these cars are on the market. Already there are 13 hybrid gas/electric vehicles on the market right now, including five SUVs. We've got another nine coming down the pike. So this program will really help drive the market even more toward fuel-efficient vehicles. Another option is to just require existing car owners to be able to purchase low-rolling resistance tires that improve fuel efficiency.

The last thing with transportation is -- that we drive a lot in New Jersey; about 75 percent of New Jerseyans drive to work alone. So we've got to stabilize the amount of vehicle miles that we drive in the state.

We can do that by providing incentives for ride reduction programs, like carpooling, and vanpooling, and shuttles to transit stations. And we can also change development patterns that focus on transit villages and make sure that mass transit is not only accessible but affordable. And those solutions are just the tip of the iceberg.

We have the ability to dramatically cut our emissions. We have the ability to grow our economy at the same time. Let me tell you about a California study -- because as you know, California passed this bill. And that actually showed that by cutting emissions -- to the same levels that we want to do in New Jersey -- that would actually boost California's annual gross state product by $60 billion, create 17,000 new jobs by 2020. They found that the gains could be even larger if climate policies are designed to create incentives for companies to invest in new technology.

And in New Jersey, these kind of investments are critical. Rutgers University found that the State's clean energy standard would add 11,700 jobs to our economy. And the technologies are changing fast. Energy efficiency saves consumers money. But even with wind energy, the prices are dramatically reducing. In fact, in the next 10 years, it's possible that offshore wind energy would be half the price of the state's current price of electricity.

But let me just remind you that the investment community -- the venture capitalists -- they understand that these solutions are necessary, that-- They're understanding that we need to move toward a new, clean energy economy. They understand the benefits; they want to get ahead of the curve. And that's what we want to see New Jersey do. Because New Jersey -- we can be laggards. We can continue to rely on old fossil fuel,

expensive power plants, or we can be leaders. We can create a niche economy for our state by supporting and investing in clean energy technologies, and we can have other states and other nations come to us for the solutions.

So I really encourage you to be leaders here, and think broad about how these solutions grow our economy in New Jersey. And we can solve global warming -- we just have to lead the way.

ASSEMBLYMAN McKEON: Suzanne, again, thank you very, very much for your leadership. (applause)

Let's call upon Jeff Tittel of the Sierra Club; Dave Pringle of New Jersey Environmental; and where is -- Joanna Wolaver, of New Jersey Audubon. And I note that Mark Levy, West Orange resident and president of New Jersey Audubon, is in the audience today.

J E F F T I T T E L: Oh, thank you. And we have a lot of members here, too.

ASSEMBLYMAN McKEON: I will allow you to introduce them all, Jeff. (laughter)

Should I remind everybody it was just your 50th birthday, if they promise not to sing? (laughter)

MR. TITTEL: Yes. And I'll start off with, in 1979--

UNIDENTIFIED SPEAKER FROM AUDIENCE: Louder?

MR. TITTEL: Is this on? (referring to PA microphone) Okay.

ASSEMBLYMAN McKEON: I'm going to try to keep everybody -- and I can get away with it, because you guys are friends -- we're going to try to keep everybody under five minutes, on a going forward basis.

MR. TITTEL: I'll be brief. But since you mentioned that, I'll start off with: My first job out of college, I worked for the House Subcommittee on Environment and Energy. And one of the first things I did was put together a panel of scientists and experts to talk about greenhouse gases and alternative energy. And one of the members of that Committee happened to have been Phil Graham, who shot the thing down. But that was back then. And I was thinking about it on my way up -- that global warming has really been caused by the fossil fools in Washington. (laughter) (applause)

ASSEMBLYMAN McKEON: And that's your sound bite, Amos. (phonetic spelling) (laughter)

MR. TITTEL: And it's really been the lack of leadership at the Federal level and the power of the special interests that, time after time, have undercut good public policy, things that would actually help protect the environment and promote a good economy. And when you think about this impact on global warming and what it means to a state like New Jersey, which is coastal, it would be tremendous. Besides the fact that we have seen (indiscernible) of floods and droughts -- three major floods on the Delaware in 20 months -- we've seen significant droughts in the last five years; and when we're not raining, it's flooding. But when you think about the impact that it could have to the state, it could be devastating.

And we have a chance to turn things around. And this legislation is a key part of that. That, when you look at Western Europe and the advances that they're making -- especially in places like Denmark and the Netherlands, where you can actually have a higher standard of living than the United States and produce half the greenhouse gases -- we

know it can be done. And we can be a leader here in New Jersey to make sure that we have a high standard of living, plus we can protect the environment.

What I see happening with this legislation, and other legislation that could come forward-- It's just like we've had a communications revolution in the last 20 years, where home computers were big and could only play Pong, and now you have handheld computers that-- This will unleash the technological equivalent of the moon challenge -- that we can, in the next 20 years, be able to produce clean, cheap power. We'll be able to get to places with fuel-efficient and alternative-fuel vehicles. That we can really have it all.

We can change the dynamic in this country, but it takes all of us to work together, and it takes all of us, including government at the State and local level, it takes citizens involvement. It also takes citizens to do the right thing at home.

Thirty-six towns in the State of New Jersey have signed on to the Kyoto Protocol. Sierra Club, nationally, has been working with the mayor of Seattle with our Cool Cities program. And there will be people here who can talk to it later -- about getting towns to sign on. And the reason is that -- because people are leading and leaders are following. And if we work more and more at the local level, at the State level, we can make a difference in Washington as well. Unless we really work together and make this happen-- You know, when you think about the impacts in New Jersey -- the Pinelands won't be the Pinelands, because those trees won't survive; the Highlands can become a national seashore. You know, when you go to Giant Stadium, instead of seeing the Giants, you'll end up seeing dolphins

-- real dolphins, not the football team from Florida. So it's really for all of us.

The one thing I would like to add is that this bill is an important step forward. But the Governor and his executive order also called for the goal of 80 percent reduction by 2050. And maybe we should think about adding that as part of the goals of this bill as well. I mean, it's so far down the road, but we should think about 20 percent by 2020; but at least talk about the goal of 80 percent by 2050.

And I just wanted to just end with, this is really about the future of our planet. Unless we all work together and really make this happen, we may not have a planet for our children and our future children. And we really need to make sure that we all get this done. Because otherwise, we're just emitting more hot air here tonight.

ASSEMBLYMAN McKEON: Jeff, thanks.

And I do acknowledge a lot of the members of the Sierra Club, and local ones -- I see Michelle and some other people -- and they're a terrific organization. And thank you.

D A V I D P R I N G L E: Thank you, Mr. Chairman.

I'm David Pringle. I'm the Campaign Director for the New Jersey Environmental Federation. I'd like to thank you and the Committee and the sponsors, because without your leadership on this issue and many others, we'd be much worse off. I was very happy to hear that the Committee anticipates a vote on Monday, and that's good, new news, because we need to move quickly here.

I'll be very brief. We support the legislators, scientific and environmental testimony we've already heard here tonight. And I just wanted to make one note and a little anecdote.

We can debate forever how much fossil fuel is left. It's not debatable that fossil fuels are infinite -- and they're not -- and they come at tremendous public health costs and to our world. One has just to visit an emergency room on a bad air day, or Iraq any day these days, to understand the consequences of not acting.

I wish I brought it, but hope-- I forgot to bring a copy with me tonight, but hopefully most folks saw the Sunday *Star-Ledger*, the front page and Perspective section. I raise it here because my 8-year-old son, Ryan, saw the front-page photo in the *Star-Ledger* of a couple of bears literally barely clinging to a slab of polar ice in the middle of a sea. And he saw the headline "Global Warming." He's a third grader, and I don't -- he sees what I do, but I don't lecture him everyday or anything -- but he immediately asked me why the President wasn't doing more about global warming and to save the polar bears.

Yesterday, 24 hours later, on our way home from a terrific trip -- first time I've ever been to the Bronx Zoo in the Winter, it was terrific. Among other things, he saw a polar bear; on the way home he asked, "How come so many folks are driving so much. Why don't people get out of their car more and save the polar bears?"

And this issue is much more than just polar bears, but when even President Bush acknowledges that polar bears are endangered because of global warming, you know there's a *there* there. And it's much more than polar bears. It's how we produce power that exacerbates extreme weather,

as we heard tonight, and disease. That comes at tremendous public health and economic cost. And rather than point fingers at each other, I think we all need to pat each other on the back and move this legislation as quickly as possible.

Thank you.

ASSEMBLYMAN McKEON: Thank you very much, David. (applause)

Joanna.

J O A N N A W O L A V E R: Hi. Again, I'm Joanna Wolaver, with the New Jersey Audubon Society. Thank you for the opportunity to speak tonight. I'm here representing the New Jersey Audubon Society and our over 23,000 members from across the state.

We appreciate your leadership in taking on this issue of such great importance to our citizens and to the future of our state. The Global Warming Response Act truly is groundbreaking legislation. Reductions of emissions through this legislation would make New Jersey a national leader and, more importantly, is essential to ensuring a high quality of life for future generations in our state. By all reports, if emissions continue unchecked, the outlook is grim, as we've heard tonight.

In addition to the devastating air pollution, public health, and safety concerns, global warming is a primary threat to the well-being of New Jersey's plant and wildlife communities. In New Jersey, we could see the loss of at least 37 species; and flooding along our coast could destroy critical habitat for 11 endangered species, including the red knot, which we have worked so hard to protect recently.

This is particularly worrisome because we depend on healthy wildlife and plant communities in New Jersey for a high quality of life. Many people enjoy watching wildlife. Also, bird species projected to disappear feed on insects that are pests -- tent caterpillars, gypsy moths, mosquitoes, to name a few. We also depend on these species for a healthy economy. Wildlife watching makes a significant 3.9-billion-a-year contribution to our economy.

However, the good news, as we've heard tonight, is that there is still time to limit the losses and reduce the worst impacts of global warming, if we take actions now by reducing emissions. Through this legislation, as we've heard, we have the opportunity to protect not only plants and wildlife, but the future well-being of our economy, public health, and quality of life.

So thank you very much, and thank you for taking on this important issue.

ASSEMBLYMAN McKEON: Thank you very much, and other members of all the environmental organizations for their leadership and assistance.

Thank you.

I am going to call upon Bill Walsh, of PSEG; as well as Steve Gabel, of the Independent Energy Producers of New Jersey.

Thank you. (received testimony)

S T E V E N G A B E L: Good evening.

My name is Steven Gabel. I'm an energy consultant. I run a firm named Gabel Associates; provide energy consulting to a wide range of clients in the region. And I've been asked by the Independent Energy

Producers of New Jersey to come before you this evening. And I appreciate the opportunity, Chairman McKeon, to be here, to talk about the legislation that's now in front of you.

I've handed out some exhibits that I'm largely not going to speak from. I'll try and keep my comments brief.

ASSEMBLYMAN McKEON: We appreciate that, because we will make certain that we get through them.

MR. GABEL: I did want you to have some resource information here that you could look at as you consider this piece of legislation.

Generally speaking, I'm personally taking no debate with any of the scientific evidence that's been presented tonight. What I'm here to talk about is making this thing work. Putting a policy in place in New Jersey that can truly reduce greenhouse gases on a global level is a goal and a solution that we share, and we want to make that work and come up with a piece of legislation that can make that work.

If I had one general observation to make about the legislation that's in front of you tonight -- is we'd like to see it be more specific. We'd like to see this panel, this Committee, really show full leadership in this and give clear direction to the DEP on how to achieve these goals. As the legislation is drafted now, it's a very broad brush. It passes -- puts on the screen not even a goal. It asks the DEP to set the goal of the percentage reduction, let's the DEP make the determination of how to get there for each sector of New Jersey's economy. This legislation will have a vast influence not only on New Jersey's environment, but on its economic well-being. And I think the Legislature should put its signature on that by giving

specific mandates, goals, and mechanisms to the DEP to make sure the authority that you hand off to them is used in the right way for the overall State of New Jersey. (applause)

With respect to some of the issues in the bill, I just wanted to take a minute or two, Chairman, to do a little issue-spotting, just to try to and bring some marketplace issues to your perspective. First of all, with respect to reliability issues in New Jersey on the electric power side, three major regional and national organizations -- that being PJM, which runs this state's and the regional transmission system; the Federal Energy Regulatory Commission, which regulates power at the wholesale level; and the North American Electric Reliability Council, which is in charge of reliability on the national level -- all point to New Jersey as a difficult area when it comes to reliability over the next five to 10 years. We will not have adequate supplies of power unless we plan and provide the right sort of incentives for those plants to be developed.

There's two places those plants can happen: Close to the load, along the eastern corridor, in the State of New Jersey. New Jersey has the strongest set of environmental standards in the region, perhaps in the nation, and power plants in New Jersey tend to be considerably cleaner than those plants anywhere else in the country. Or we can have power plants development along the Appalachian region throughout the Midwest. And the polices that you put in place through this legislation, and that DEP implements, will go a long way in telling the story of where that development occurs.

I mentioned an entity called PJM, which not many people know about. It's way behind the screen. When you turn on your lights, it's

actually this entity -- PJM -- which is making the determination on the flow of power, and actually making the determination on which generator is operating every hour of the day and year. I bring this up because while it's a little dull, I need to drill down into this so that you understand the economic impact of the actions. The way PJM administers this system is, every hour of the day and year they make a ranking of power plants from a lowest-cost bid to a highest-cost bid. They determine what the demand is in that hour. They draw a line right across where the demand is, and they accept the power plant bids from lowest cost to highest cost. So if you impose a policy on New Jersey generation that's not imposed on generation in Pennsylvania, Ohio, West Virginia, Virginia, or elsewhere, that ranking changes. And you immediately see a re-ranking where the New Jersey generation moves up and out of the pecking order, and the Pennsylvania generation, the Ohio generation moves in. This is real. The studies that have been done by RGGI show that this issue is an extremely sensitive issue, and all the benefits that we're trying to achieve tonight can be washed away if that policy is not handled in a very delicate way.

I point out, just as evidence of that -- so you have a sense of the economic values that are flowing around now -- right now, there are two transmission line investments being proposed at the regional level. One runs from West Virginia to Deans, New Jersey, at a cost of $3 billion. Another runs from western Virginia -- Possum Point, Virginia -- to Salem, New Jersey, at a cost of $1.2 billion. Those type of moneys are not being put forward for no return. They're being put forward because of the potential that, if New Jersey doesn't handle this the right way, the pipeline

is open; the marketplace will let that generation happen and be imported into New Jersey.

So we think this issue, which in industry parlance is known as *leakage*, needs to be addressed before anything is implemented. Some people mentioned RGGI, which is the Regional Greenhouse Gas Initiative. That program was signed onto by Governor Codey in late 2005 -- then-Governor Codey, and that program and the participants in that program need to make a decision to implement that program with or without an answer to this leakage problem. The dynamics get interesting. The other main participants in this Greenhouse Gas Initiative are the New England states and New York. The New England states are members of a different power pool; they don't face Pennsylvania and Ohio the way New Jersey does. New York has its own power pool; they don't face this problem the way New Jersey does. So the fear on our part is that this program might go forward and just open the gates to further import generation from power plants to the west of us.

With respect to that issue, the other major issue for us is how the State will handle the allocation of allowances to power plants. Some have proposed that those allowances be auctioned off to the highest bidder. If you do that, that will only increase the economic impact and the ability of cleaner, New Jersey generation to operate.

Quickly, two other issues that we think need to be recognized in this legislation are: The benefits of cogeneration -- every time a cogeneration plant comes online, major industrial boilers are shut down, and that's a significant benefit that should be recognized within the administration of this program; and finally -- and a number of the speakers

have talked about this -- is the idea that this program can open up more economic activity. We support that. There's a program called the Offsets Program, whereby generators would be able to purchase energy efficiency, or reforestation, or other measures to reduce greenhouse gases as a way to achieve compliance. We think that program needs to be implemented in a flexible way so that dollars will flow in the direction of these energy-efficient technologies.

I hope to have the opportunity to spend more time with each of you.

And that's my comments.

Thank you. (applause)

ASSEMBLYMAN McKEON: Okay. Thank you very much. We appreciate it.

W I L L I A M J. W A L S H JR.: Thank you, Mr. Chairman, members of the Committee and staff. My name is Bill Walsh, and I appreciate the opportunity to give you a sense of PSEG's perspective on these issues.

This is not an issue that's new to us. We were the first utility in the country to sign on to a pre-Kyoto greenhouse reduction initiative, which limited our emissions to 1990 levels by the year 2000. We accomplished that goal. We have recently signed on to -- building on the progress of this prior commitment -- signed on to an initiative to reduce carbon dioxide emission rates to 18 percent below the 2000 levels by the year 2008. We are well on track to meet that goal as well. And we have been the leading industry advocate for a national solution to Greenhouse Gas Initiative issues.

Secondly, I think the legislative goals are certainly laudable. I'd like to give you a sense -- to put the numbers in perspective for you, if I could. If you project the New Jersey current greenhouse gas emission rates out to 2020, assuming a business-as-usual increase at the national level -- which is around 1.3 or 1.4 percent -- then New Jersey emissions are expected to be on the order of 180 million tons. So the goal to get back to the 1990 level is something like 25 percent reduction.

Now, a recent CO_2 global abatement study done by McKinsey and associates says that "Globally, a 25 percent reduction in CO_2 could cost on the order of $15 to $30 per ton of carbon reduced." And if you assume a gradual reduction, to 2020, of the New Jersey current levels, then you're talking about a program that could have a price tag somewhere between $3 and $6 billion for New Jersey citizens over that period of time. So it's critical that if New Jersey does this unilaterally, or even within the RGGI region, that we're going to have issues in terms of a significant potential impact to our economy.

Third, I think there are a lot of things that New Jersey and PSEG can do, and you've heard some of them from previous speakers: Increased aggressive investment in energy-efficiency technologies, in renewable energy such as photovoltaic where it makes sense to make that happen. And you really need to look at-- We're still going to require large central-station power, going forward. Nuclear power is a proven technology that represents a zero carbon emitter. Now, there are certainly issues with nuclear siting issues. What are we going to do with the long-term, high-level waste issue? But these are issues that we need to really start to address significantly and critically, because quite frankly, we think nuclear

represents, probably, the most realistic option for a carbon-friendly central-station power, going forward.

One interesting fact on New Jersey power plant carbon emissions: there are about 23 million metric tons per year. And that represents probably 15 percent of the total of where we are in New Jersey right now. If you look at nationally, where those figures are, electric power plants are responsible for somewhere on the order of 40 percent of the total carbon emissions nationally. So you look at the New Jersey in-state power production -- is much cleaner than what we see as a national average.

I'm going to bounce around a little bit to try and keep to my five minutes, and try to keep you on schedule, Mr. Chairman.

ASSEMBLYMAN McKEON: Thank you.

MR. WALSH: We really believe that the public focus needs to be on a national solution, a national cap. And that cap should decline over time and fit into what the climate models are telling us needs to be done at this point in time.

You've heard about the intergovernmental panel, what they think the number should be. It's clear from these speakers, and the scientists that you had up here as a panel, that this is the fundamental environmental challenge that we're facing now and in the immediate future. But really, we don't see a silver bullet. It's going to take a diverse approach, lots of different issues, lots of different approaches; as I said, heavy, aggressive investment and energy efficiency. Utilities have the relationship with customers; we have the brand, we have what we refer to as *patient capital* -- that is, any investment we make in our business is for the long haul. It's a long-term investment, and we can get and help maximize the

penetration of energy efficiency, of renewable resources. We have put forth a number of ideas within the context of the Energy Master Plan. Actually, strategies and concepts we have put forward meet approximately half of the electricity goal that's laid out in the Master Plan; and a similar reduction, or target, on the heating goal as well.

I've got a lot of background information that I've provided the Committee. I would ask you just to quickly turn to a report here called "Benchmarking Air Emissions." There are two charts I'd like you to quickly take a look at. This was a report put out by a collaborative of Ceres; NRDC, National Resources Defense Council; and PSEG. It's the fifth such report. And if you'll turn quickly to Page 14, is it?

ASSEMBLYMAN McKEON: The map of the United States.

MR. WALSH: The map of the United States, correct, yes. It is Page 14. As of January 2006, 132 new coal-fired power plants were planned throughout the country. And the numbers in each of the states are the blue numbers -- I'm assuming that's blue, I'm a little color blind so -- but as the blue numbers here indicate, the number of power plants that were scheduled for those areas. Forty-seven of those power plants are in the PJM region, the power pool that Steve referred to. One of them is scheduled for the RGGI region.

Now, the Energy Information Administration forecasts that by the year 2030 we will see coal power production increase by two-thirds. That will be an additional 1.1 billion tons of carbon in the air. And if you look at the entire RGGI budget for all the states that are active, you're talking about 184 million tons. So the expected increase from power plants outside of New Jersey and outside of our region, to put it one way, would

need a shutoff of every carbon-emitting source in the RGGI region for six years, and that would only offset one year's worth of additional carbon that we expect to see by the year 2020.

So clearly, we need a national solution here. And the efforts of the sponsors, and this Committee, and the State of New Jersey have done a lot in terms of pushing the Federal Government to do something. We see legislation now introduced by Feinstein, and Carper, and Boxer, as well. So there are a number of legislative proposals at the Federal level that you're starting to see movement on, and we really believe that that is the answer to a national solution.

ASSEMBLYMAN McKEON: We're going to open it up to -- and that was a very excellent accentuation of a point about the need for a national approach.

Assemblyman Gordon had a question for the two of you.

ASSEMBLYMAN GORDON: For either one of you. I want to make sure I understand this concept of leakage. That is, energy that is going to have to be imported into the state because the in-house producers are no longer going to be cost-competitive. And if I've got that right, I want to make sure I understand the downside. Does that mean our energy is going to be costing considerably more because we're importing it from the outside?

MR. GABEL: There's two elements. One is that it will move us up that cost curve and raise the cost of energy. And the second is that, because the current plan -- is that under RGGI, the Greenhouse Gas Initiative -- puts New Jersey under a cap, but doesn't put Pennsylvania and states to the west under the cap, you won't reduce the amount of

greenhouse gas emissions, you'll just shift it to those other states. So the elements you've talked about are correct.

ASSEMBLYMAN GORDON: Another question that I think that you were touching on, in terms of needing national policy. I was going to raise this question with the scientists, but I think perhaps you can address them. You talked about the impact of the coal-fired plants coming online elsewhere in the country. There's a letter in the *Record* of Hackensack this week, suggesting that whatever we do in New Jersey is going to have a miniscule impact globally, because in the coming decades, with the industrialization of China and India and other developing countries, that perhaps hundreds of coal-fired plants will be coming online. So whatever we do here is really a drop in the bucket and may well have a serious economic impact. I wondered if you could comment on that.

MR. WALSH: If I could get you to just back up one second. One of the charts I provided really speaks to the issue of leakage that Steve talked to. It is a chart that shows, in green, the RGGI states. And the red, or the pinkish color here, will tell you what the PJM power pool looks like in terms of the geography it covers. You've got New Jersey, Delaware, and Maryland on the eastern edge of PJM.

It's actually in the packet -- there were four loose charts. I apologize. The top says *PJM Electricity Markets*.

ASSEMBLYMAN McKEON: We got it.

MR. WALSH: Got it? Everybody's got it?

ASSEMBLYMAN McKEON: Yes.

MR. WALSH: Okay. So just to kind of highlight the issue here: you've got New Jersey, Delaware, and Maryland on the eastern edge

of PJM; then you have the rest of the RGGI states, in the dark green, within their own power pools, as Steve mentioned. So this gives you a sense of what New Jersey is dealing with, in terms of the leakage issue and where that power would more than likely come from.

I have heard estimates of 600-plus power plants in China alone. So I think the issue gets to-- The United States would clearly need to do something. I don't think that we can sit back as a country and say, "Now that we are a developed country, China, you should really do an awful lot to take care of this issue and should come up with some other way to feed your desire for energy than 600 coal plants." We clearly need to do something here, and that's why we think it's important that we get a national program moving quickly. But New Jersey can certainly do something that will benefit the state locally and have an impact locally on greenhouse gas initiatives. And that is, get into the aggressive investment in the energy-efficiency and the renewable technology, and start to have plans for what you're going to do for a central station going forward. Clearly, new coal technology, you have things like carbon capture and carbon storage that are really kind of on the cusp of technical and commercial viability, and we think it's going to take a lot of research in order to get those plants up and running. There is no commercially available technology right now that can reduce the back end of the carbon emissions from power plants. It's not like nitrous oxides or sulfur dioxide or sulfur oxides, where you have back-end control in technology. You can put on the units to take care of that. You don't have that, right now, for carbon.

MR. GABEL: I just wanted to quickly add in response, I'm not here advocating, by any stretch of the imagination, that we do nothing and

wait. What I do want us to do is to -- what we do to be truly effective. And I'd hate for us to come back three or five years after a bill is passed to only say, yes, we reduced New Jersey, only to see it increases elsewhere as the result of our actions.

ASSEMBLYMAN McKEON: Thank you both very much.

Assemblywoman Stender.

ASSEMBLYWOMAN STENDER: On this issue of leakage that you were discussing, and the impact of the producers from outside of the state -- within the legislation, what we are -- what it says is that the DEP would be doing these inventories and setting -- looking for -- to all greenhouse gas emissions from the generation of electricity delivered by utilities and consumed in the state, whether generated in the state or imported in the state. Now, I'm not sure whether that -- how that fits in with the issue that you're raising, or--

MR. GABEL: My view of that language -- and certainly it touches on the issue that we're talking about with leakage. But I've been around legislation a lot, and if you just say *to look at it*, what you want to happen may or may not happen. But if you specifically say that the greenhouse gas initiative should not go forward until this issue of leakage is effectively addressed, then I think, Assemblywoman, you can leave legislation to the DEP that you know will get the job done. So I'm really looking to fine-tune these words to make sure they have the desired effect.

ASSEMBLYWOMAN STENDER: Thank you.

ASSEMBLYMAN McKEON: Again, thank you both very much.

I have a former mayor and a current mayor here -- Mayor Atlas of Ringwood, and former Mayor Russo of Montclair. Welcome to you both.

M A Y O R J O A N N E A T L A S: Hello. Is this working? (referring to PA microphone) I saw everybody having trouble.

ASSEMBLYMAN McKEON: That's recording, but not amplifying.

MAYOR ATLAS: Good evening, Chairman McKeon and members of the Committee, Assemblywoman Stender, Assemblyman Manzo, and Assemblyman Gordon.

I want to thank you very much for holding this hearing. It's kind of a landmark for New Jersey, and I think for the country, and maybe even for the world.

I'm Joanne Atlas, and I am the Mayor of the Borough of Ringwood. Ringwood was one of the first towns in New Jersey to sign onto the U.S. Mayor's Climate Protection agreement, and I'm very proud of that. This was followed by the creation of a Green Ribbon Advisory Committee, which is now in the process of writing an energy sustainability plan for our town. The cornerstone of that, of this plan, will be the construction of a new solar-powered, energy-efficient borough garage. Ringwood is a small town. We don't have much development, thanks to the Highlands Act. We recognize all of you. We don't anticipate much development, so whatever development we are going to do, we're going to try and make it sustainable -- energy sustainable, and in other ways as well.

I come here to express my appreciation to you for helping to move this issue forward and to encourage everyone in this room not to lose

heart no matter what you hear. I draw a parallel between this movement and the nuclear weapons freeze movement that I was involved in many years ago. I'm dating myself. And the turning point, I believe, for the nuclear weapons freeze campaign was Chernobyl, and people recognized that. And it went right to people's hearts, and it changed their attitude. And perhaps Katrina will have the same effect on allowing people to understand and recognize the enormity of the situation with global warming. So it's up to the rest of us to take advantage in a good way, and really move this ahead now with great, great vigor. And I think I'm very optimistic -- optimistic in terms of the country and the world.

My son works in China. We need people there. I work for New York/New Jersey Baykeeper. I'm a grant writer there. And Andy Wilner is in China right now trying to start a new Keeper program in China. So the people in China are as aware as we are. The people in the world are as aware and care as much as we are. It's a matter of speaking to everyone, speaking with our hearts, and doing what needs to be done right in our own homes.

So thank you. (applause)

ASSEMBLYMAN McKEON: Mayor, thank you.

Mayor Russo.

R O B E R T R U S S O: Thank you, Mayor.

As a former mayor, I want to commend Assemblywoman Stender for sponsoring this bill and advocating so strongly; and Assemblyman McKeon for having this hearing neighboring Montclair.

Our town competes with a lot of others, saying it's the most environmentally conscience town. But I know there are a lot of

communities that are doing this -- Highland Park also. We bought about six natural gas vehicles about seven years ago that we've been using in our town government, natural gas vehicles. And we've been intending to put solar panels on our buildings as soon as possible -- on our public buildings.

But we've also made our town a sustainable town; a town that wants to see environmentally friendly activity. So we support -- at least, I, as a former mayor -- and I can't speak for the current administration -- support this bill. We think that this bill is essential and we've got to take action now. As my colleague the Mayor said, this is critical. It's gotten to the point where everybody now realizes -- after watching Al Gore's film, and if you read his book -- and you realize that we're now at a point that you have to take action.

New Jersey has always been a leader in areas of consumer protection, as well as environmental protection. So I think you need to take this action today, and going forward. And I want to say to those who feel we might lose economic benefits or you might have business impacted, we're all concerned about that. But there's solutions now and there's technologies now that will actually help promote business and economic growth. You can use this technology.

I attended the Solar Cities Conferences -- the only mayor from New Jersey -- about three years ago, with Mayor Jerry Brown of Oakland at the time. And he and I sat there talking to other mayors around the country. The Solar Cities Conference was held in San Francisco, and the technologies that were brought to our attention were tremendous, and they will generate jobs and generate economic development. So they're good for

the economy as well as good for the environment, and I urge your support and your passage of A-3301, as a former mayor of Montclair.

I'm Bob Russo, by the way.

Thank you. (applause)

ASSEMBLYMAN McKEON: Thank you very much.

Now I'm going to call upon Rabbi Lawrence Troster, of GreenFaith; Sue LeGros, of Mid-Atlantic Solar Energy Industries Association; and John Cusack, of New Jersey Higher Education Partnership for Sustainability.

And Sara Bluhm and Eric DeGesero, you two are on deck.

Rabbi, welcome.

RABBI LAWRENCE TROSTER: Thank you.

And I want to commend this Committee for holding this hearing and for this piece of legislation.

I'm Rabbi Lawrence Troster, the Director of the Fellowship Program at GreenFaith, which is New Jersey's interfaith environmental coalition. At the outset, on behalf of GreenFaith, I would like to say that we strongly support the Global Warming Response Act, A-3301.

There are critical times in history when the religious communities of this country have made a decisive difference. The civil rights movement, for instance, was such a time. In regard to the environmental crisis, we at GreenFaith believe that such a time has arrived.

The context for our work is the stark reality that creation is in crisis. The recent Intergovernmental Panel on Climate Change report, which received substantial media coverage, makes clear that we must act quickly to avoid and to mitigate a severe ecological and humanitarian crisis.

Other reports from highly-respected scientific bodies around the world make it clear that all the Earth's major ecosystems are in decline. We must respond now, or leave a disastrous legacy for our children and for all life. Now is the time to act.

As a theologian and as an activist, I have been working in the field of religious environmentalism on a regional, national, and international level for over 15 years, and I can tell you that this is a critical time in the life of the religious communities of this country, as they are now lining up, right from all different perspectives, to support an action against climate change.

For 15 years, GreenFaith has been educating and mobilizing people of diverse spiritual backgrounds, inspiring them to deepen their relationship with the sacred in nature and restore the environment for future generations. We believe that caring for the Earth is a value shared by all of the world's religions. We believe that creation is a gift and a possession of a loving creator, who has called humanity to be faithful stewards of this planet for all life, present and future. We believe that environmental stewardship is a moral responsibility, and we believe that people of faith have a vital role to play in the restoration of a safe and healthy environment.

This past Fall, GreenFaith arranged for the showing of the film *An Inconvenient Truth* at over 130 houses of worship in New Jersey, and we continue to do this program. There was a discussion after each showing where we -- and we also produced a study guide to facilitate the discussions; and in many cases, we provided discussion leaders for those congregations

which requested one. I myself lead the discussion at a number of showings in churches and synagogues.

The film produced powerful emotional reactions in those who saw it. They were profoundly struck by the seriousness of climate change. Many people expressed bewilderment and outrage at government's lack of response to this crisis. People were angry that their political leaders had not demonstrated the willingness to lead on this critical issue. And that is why it is so commendable that you are now taking such a leadership role.

While we tried to show how everyone could become part of the solution to climate change, everyone at these showings agreed that strong legislative and regulatory action on the part of State and Federal Government was essential in solving this problem. Many people responded to the film from their faith perspectives, and they felt that it was a religious obligation to do something about climate change.

At each showing, we asked people to sign a pledge card with what they were going to do personally about climate change. We gave them five possible actions increasing in difficulty, from changing several incandescent light bulbs in their homes to compact florescent bulbs, to pledging that their next car would be a high-mileage or hybrid car. We also asked them to sign a letter to Governor Corzine asking him to take action on global warming and to support the Global Warming Response Act. I have hundreds of those letters with me today; they come from all over the state. This response shows that the broad support for significantly reducing New Jersey's greenhouse gas emissions is broad in the religious communities. This bill would make New Jersey one of the first states to adopt mandatory limits on our global warming emissions.

Therefore, we at GreenFaith support the Global Warming Response Act, and we are encouraging energy conservation and the development of sustainable energy. We believe that we cannot overstate the issue. We want you to know that immediate action on climate change has broad support within the religious community. At GreenFaith, we pledge to continue mobilizing people of diverse faiths to act on global warming.

In conclusion, I would like to quote a rabbinic commentary, a midrash on a verse of Hebrew Scriptures that the Jewish environmental movement is fond of citing: In Ecclesiastes it says, "Consider God's doing. Who can straighten what has been twisted?" The midrash says, "When god created the first human beings, God led them around the Garden of Eden and said, 'Look at my works! How beautiful they are, how excellent! For your sake I created them all. See to it that you do not spoil and destroy my world, for if you do, there will be no one else to repair it.'"

Thank you very much. (applause)

ASSEMBLYMAN McKEON: Thank you, Rabbi.

Ms. LeGros and Mr. Cusack, we have your written testimony. And I appreciate that you might want to follow it as an outline, but the best you can do to provide us a synopsis of that-- I'm trying to move it along; there are a lot of people who would like to speak.

Thank you.

S U S A N P. L e G R O S: Happy to do that.

I'm Susan LeGros, Executive Director of the Mid-Atlantic Solar Energy Industries Association. We are a trade association of approximately 75 solar industry companies, which includes manufacturers, integrators,

installers, suppliers, and others who try to service the voice of the solar industry in New Jersey, Pennsylvania, and Delaware. And we support the Global Warming Response Act.

I think many of you know the benefits of solar. One of the most important that I would point out here is: solar is clean -- it produces zero emissions. Based on the environmental integrity project, this means that for every megawatt hour of solar that displaces a megawatt of fossil fuel, you'll offset the industry average of 8.3 pounds, and up to 22 pounds, for the dirtiest power plants of sulfur dioxide. You offset somewhere between 3 and 6 pounds of nitrogen oxides, and between 1,970 pounds and 2,500 pounds of carbon dioxide per megawatt hour.

Remember also that solar is most abundant on the sunniest and hottest days when electric generation companies have to turn to some of their oldest, and dirtiest, and most inefficient plants to produce power. Solar is also reliable; and most importantly, it is free, although obviously the price of the equipment to capture it is not. But the price of solar is dropping, and it is becoming increasingly competitive with the cost of electricity.

We want to commend Assemblywoman Stender, and Senator Buono, and the other sponsors of this legislation; and point out that we stand ready to work with New Jersey to deploy our renewal solar energy resources to assist in meeting the emission reduction goals.

Two critical areas that we think need to be addressed as part of this effort are: First, education. Even though the Renewable Portfolio Standard and its accompanying rebate program have worked to educate the public on the advantages of solar, we still have a lot to do to bring people

up to speed on the benefits of solar for themselves and their companies. For instance, many homes that cannot accommodate a solar photovoltaic panel could accommodate a solar hot water heater and offset the cost of hot water heat. We have made public education on the cost and the benefits of solar and the proper industry standards to be followed one of our goals.

The second critical area that needs to be addressed is innovation. New Jersey has been a leader in renewable energy and is now taking the lead in requiring mandatory limits on global warming emissions. As part of the Energy Master Plan, the State should consider additional measures to open itself up to renewable energy as an alternative supply. For instance, in April of last year the Renewable Portfolio Standard was established as setting a goal of 2.12 percent, or approximately 1,500 megawatts of the states energy, supplied by 2021. We think we can do a lot better than that. We would like to see the Renewable Portfolio Standard expanded to allow increased use of solar energy, because we think that the industry can provide it and that is would be a great boon in offsetting global emissions.

Another area where we could innovate is the fact that the Office of Clean Energy presently makes solar available only to about 10 percent of the facilities in the state that have roofs that are oriented so that they can take advantage of solar. Those fortunate few can pursue solar only if they want to take advantage of it and if they qualify for a rebate. Let's think--

ASSEMBLYMAN McKEON: I want you to wrap up; it's been five.

MS. LeGROS: Will do.

Let's think about legislation that would ensure that a homeowner has the same right to install solar as they do, for instance, shutters -- perhaps a solar homeowners' rights. And let's also allow some type of enhanced net metering that would allow facilities who can produce more than their need of energy to share that with others who perhaps cannot do that. So essentially, our message is, we stand ready to produce solar energy. Let's get serious about doing it, and help ourselves, New Jersey, and future generations at the same time.

ASSEMBLYMAN McKEON: Okay, thanks very much.

A note, quickly: that in West Orange we have the first hotel, and the only one in all of New Jersey, to be powered solely by solar energy. So we know firsthand in this community how efficient it is. It's a wonderful, big-time hotel -- the Residence Inn.

I also note for the record that we have written testimony from DEP Commissioner Lisa Jackson, as well as from BPU Chairman Fox. So I want everybody to realize, who has written testimony, it's very well received by us and a part of the permanent record. So don't feel compelled to -- speak as you'd like to in your time allotment, but written testimony is an important part of our record and a permanent part of it.

J O H N L. C U S A C K: My name is John Cusack. And if you're expecting John Cusack, the actor, I'm sorry to disappoint you. (laughter)

I'm actually a -- not a scientist, but an engineer and businessman with 34 years of experience in the energy, and environmental and, financial world. But I'm serving as Executive Director of the New Jersey Higher Education Partnership for Sustainability, which we call NJHEPS for short. It's a not-for-profit consortium of 45 New Jersey

colleges and universities dedicated to promoting sustainability practices and policies in our campus operations, curriculum, and communities.

We're trying to point out the people -- and that includes, by the way, people like Princeton and Rutgers and NJIT, the research schools in the state; a number of faith-based groups including New Brunswick Theological Seminary, some rabbinical schools; and also schools like Seton Hall and St. Peters -- a number of other private schools; and 19 of the 20 community colleges in the state.

We want to prove to people that this is already -- can happen, and in fact, already is happening. With the assistance of MJHEPS, the presidents of the New Jersey higher education institutions, of which there are 58 at the moment giving degrees in the state, recognized this issue back in 2001 and made a voluntary commitment to try to reduce the greenhouse gas emissions by 3.5 percent, from 1990 levels, by 2005. Nine of our colleges and universities were able to meet this ambitious goal despite doubling the average size of their campus during those 15 years. And many of those schools have also adopted our high-performance, sustainable design guidelines to try to prevent future emissions. Because after all, the best form of renewable energy is not using energy at all. So if you can design out energy use out of your building, that's tremendous. This by the way -- this work has saved over $40 million per year in energy costs for those schools, and also reduced about 500,000 tons of CO_2 emissions over that time period.

So NJHEPS is really working with the higher education community to try to reduce the impacts of global warming by improving our energy efficiency, reducing our emissions; but more importantly,

educating our students, staff, and local communities as to the importance and seriousness of these issues. We've received some support from BPU and DEP, but we need more support to try to increase the cooperation and commitment of business, government, and society to combat climate change.

Recently, we are -- in fact, actually, in the process of proposing to the New Jersey Presidents Council -- all the presidents of all schools in New Jersey -- the adoption of the national presidents' Campus Climate Challenge, which calls for our schools to have a plan within two years to become carbon neutral, which means you reduce all your emissions as much as possible and then offset the rest, and implement that plan over the coming years. We have proposed that all private and public institutions should adopt the State goal and Governor Corzine's executive order, but add an interim goal of 10 percent reduction by 2010, so the shape of the curve is like this instead of like that. (indicating) Because the sooner we work on this problem, the better off we are.

Wearing my business hat for a second, I'd like to point out, too, that New Jersey has about $505 billion of insured property at risk from coastal storms, and typically, only one-third of all properties insured. So there's a tremendous financial risk to New Jersey and higher education -- we have a lot of schools close to the coast -- as well as to the society in general here, and we have to work on this issue to protect the economy of the state.

I would point out that the state of Connecticut, that I've done some work with in the past, actually sponsored a summit on the financial risk and opportunities of climate change for the insurance industry back in 2005, and are planning similar seminars right now, for this Summer, for the

venture capital, real estate, hedge fund, and asset management sectors. Why are they doing this? They want to create a competitive advantage for their state, because they want-- They're investing in fuel cell technology. They want the center of carbon trading not to be in London, like it is now, but to be maybe in Connecticut.

And so from a New Jersey standpoint, we think, at NJHEPS, it's important to have educational initiatives for New Jersey business and try to combat, that and create jobs here in New Jersey by making people aware of the opportunities there are to create new, clean, sustainable jobs in our state that also protect our environment and our quality of life.

So we strongly support the passage of the Global Warming Response Act. We really would like to say we are willing to help in any way we can, because we think it's important. We have to attract the best and brightest to study, work, and live in New Jersey and expand our financial well-being. And NJHEPS and all the institutions in New Jersey stand ready to participate in this process. So anything we can do to help, please call on us to do that.

Thank you very much.

ASSEMBLYMAN McKEON: Thank you very much for your testimony. Thanks to the three of you. (applause)

Ms. Bluhm and Mr. DeGesero, I want to give the two of you both the full five minutes, as your perspective is a little different than most other witnesses.

After these two, I'm going to limit everybody to two minutes, because I'm going to just try to get to as many people as we can. Okay?

E R I C D e G E S E R O: Thank you, Chairman McKeon, Assemblywoman Stender.

Eric DeGesero, Fuel Merchants Association of New Jersey. We represent small business owners that distribute heating and motor fuels in the state, as well as provide HVAC services. I think you've heard a lot about what happens in New Jersey relative to the rest of the country, relative to the rest of the world. I'll skip over that.

I'd like to talk very briefly about what we, as an industry, have done, as small business owners, in both energy efficiency and what's coming in alternative fuels. Very active in the energy master planning process right now, working on putting together rules as they relate to energy efficiency and the greater use of alternative fuels, and our members are integral to the success of both.

In the mid-1970s, the average home in the Middle Atlantic states utilized 1,700 gallons of heating oil to stay warm. That same house today uses less than 900. So we have cut consumption in half. Granted there is building design and weatherization that goes into that, but the single largest component of that overall reduction is burner design. And we're talking, as part of the Energy Master Plan in process, about how the next wave of equipment comes into being.

With regard to alternative fuels, there's an oft-talked-about South Jersey ethanol plant. To put this in perspective, that will be a 40-million-gallon-a-year plan. We consume 4.5 billion gallons of gasoline. Our members will certainly be individuals that distribute that fuel. The largest biofuel -- this is for diesel and home-heating blending -- the largest biofuel facility in the United States will not be in Duluth, or Minot, or Omaha, it

will fittingly be in Edison, New Jersey. It will be opening in the next couple of months, and will be a 60-million-gallon-a-year facility. We consume 1.5 billion gallons of distillate fuel in the state. So from a transportation and a heating perspective, alternative fuels have a very bright future in New Jersey. There's simply a question about, can you get enough here; and the larger public-policy question of using foodstuffs and acreage devoted to foodstuffs to use for fuel.

One of the questions from a larger perspective -- and really one for you more as a policymaker to consider, as opposed to something that directly impacts us, is that the Department of Labor projects our state's population will increase to 9.5 million people by the year 2020. Using the 1990 baseline, the 1990 census, there is 7.5 million people in the state. Even if you assume that energy -- that the increase in population -- that the energy consumption is not linear, that you get some advantages from efficiencies -- which I think you have to assume -- you are still -- each new unit is still a new unit. No matter how much more efficiently you're using it, you're still going to be increasing your energy demand. How are we going to do that? Where are people going to live? I think these are very big questions.

We heard the question of nuclear power. This Committee has looked very extensively at the Oyster Creek issue, and whether or not that facility gets relicensed is very much a question. That's 650 megawatts of electricity that is going to potentially not be available. And on top of that, the B.L. England plant, right on the Atlantic/Cape May County border, is another 450 megawatts that's just been bought by a Texas private equity fund, which is also a coal-fired plant.

Wind power -- I think there's a very bright future for it. Unfortunately, when it was proposed off the coast of Monmouth County -- and I'd encourage you to talk to your colleagues from Monmouth County -- there was a near revolt because of what it would do to the tourism industry. So it's something that is great conceptionally, yet when it tried within the last 18 months to be implemented, it met with violent response.

We've been down the road of a hydroelectric project in New Jersey, many years ago, with the Tocks Island Project. So what's the answer? Well, I think that part of the answer is counterintuitive, in that fossil fuels are a part of the answer.

I've included with my testimony an op-ed piece -- or the column that Tom Friedman wrote a couple of weeks ago, as it relates to carbon sequestration. And whether or not we like it in the State of New Jersey, and this legislation will pass-- You can drive along Route 46 and hang a right onto 519 South, and you'll see the two coal-fired power plants in Pennsylvania. Whether we do something as a country -- we heard about 600 in China -- is very clearly that -- from the state, from the nation, and from the world's perspective -- coal is going to be part of the energy mix. And recognizing that solar, and nuclear, and wind, and geothermal, and all these other things will be part of it, I think that the state should also look at the great research universities we have here in sequestration.

In closing, Mr. Chairman, while it's not very popular and while fossil fuels are often derided, it is, without question, that the human experience and human civilization unequivocally is better because of the contribution of fossil fuels, not in spite of them.

ASSEMBLYMAN McKEON: Thanks.

S A R A B L U H M: Thank you, Mr. Chairman, members of the Committee. My name is Sara Bluhm. I'm with the New Jersey Business & Industry Association, and we represent the state's largest ratepayers.

You may not be aware, but the commercial and industrial ratepayer consumes 64 percent of the electricity in our state, and we have a very vested interest in the supply and the reliability of this. We recognize that climate change policy is coming, and we've actually been active stakeholders in the Regional Greenhouse Gas Initiative, as well as the Governor's Energy Master Plan. And we look forward to working with him on his executive order and you on this legislation. We're very concerned about the economic impacts of this. I know we've been quoting many different papers, but I'll throw one out that the business community pays attention to -- the *Wall Street Journal*. Last week's *Journal* had "Climate Changes, Cold Economics." And in the first paragraph, the line that jumped out at me most was: "One thing is clear, whatever the cost, it will get passed along to consumers." And from our perspective as the largest consumers of electricity, that's very scary to us.

As the Chairman alluded earlier, the industrial sector pays the fourth highest rates in the nation. Our nearby sector competition in our neighboring states pay less than we do. For us, that puts us at a disadvantage when it comes to the cost of doing business. If you've looked recently, in the past five years, we've lost thousands of manufacturing jobs. These are good paying, often union jobs, that pay more than what's being replaced with service sector jobs. We've recently seen Lenox move across the border. We've seen Gridoux Amerishield (phonetic spelling) shift 150 jobs. We're watching as the industrial sector is looking at what kind of

economy this is, both in terms of energy and other issues that impact the cost of doing business. And I ask you to take that into consideration as you're also considering the environmental aspects.

Each year since we've been in this state-deregulated market for electric cost, we've seen the competitive supply being procured at the Board of Public Utilities. But each year we've seen this cost go up. We just had our BGS auction conclude a few weeks ago, and again, we're seeing double-digit increases. We've had the Clean Energy Program in place while we've had this deregulated market, and we're still seeing prices go up.

The business community is no stranger to efficiency. We've been doing our part, but prices are still going up. And this is impacting our jobs. And if we're adding on an additional layer now that's going to make us a single-state policy, that's going to change the cost of doing business here. And we ask you to take that into consideration as you go forward with this. We would rather see us go with the regional approach. We agree national policy is the best, because then we're on a 50-state playing field and not a single-state playing field. We'd like to see how RGGI plays out a little bit more in terms of our economy.

As has been mentioned by many other people, we're in PJM, and that makes us a little different than some of the other states. Again, looking at California, they have their own grid. They don't have to compete with other states like we do. That impacts things. And just to give you another indication from PJM of our load forecast -- I know there's a lot of acronyms here -- but New Jersey is expected to increase 4,000 megawatts by 2016. And since 2003, only 1,500 megawatts of new generation has

been constructed in New Jersey. And today, there's only 60 megawatts under construction.

So I leave you with that picture -- that we need to make sure that we're going to have the power in place and that we can get it here, so that we can continue to grow our economy; and we don't have to worry about blackouts or about people not being able to turn on the lights when they get home or when they get to their job. So please remember the economy while you also balance the environment.

ASSEMBLYMAN McKEON: Thank you very much for that testimony.

Seeing no questions--

Mark Warner, CEO of Sun Farm Network; Bob Simpson, Wayne Environmental Commission; and Ted Glick of Climate Crisis Control (*sic*).

I believe Mark and Bob both have submitted written testimony. We have that.

The two-minute rule is in effect, because I want to get a few other people here. We're all obviously going to go a little bit beyond 9:30, so--

M A R K W A R N E R: Good evening, Chairman, esteemed colleagues, thank you. Given that we have provided some written testimony, I'll just try and hit the high points.

ASSEMBLYMAN McKEON: We get thrown out of this building at 10:00, so let's--

MR. WARNER: I'm the CEO of Sun Farm Network, one of the largest, most active solar companies in New Jersey. I'm also on the

Board of Directors for MSEIA, which I heard Susan LeGros, earlier, representing the New Jersey Chapter.

I just wanted to hit a couple of high points. Obviously, we in the solar community support the adoption of this measure into law. And we, as an industry, are looking forward to helping and contributing to making it real.

We'd like to focus on a couple of key points: Number one, although the focus of this legislation is CO_2 reduction, as part of accomplishing that, there are many other benefits that would also accrue. Clearly, climate change is a key driver. But our broader goal is achieving sustainable energy architecture; and beyond just being clean, also achieving a sustainable basis that's renewable, that reduces cost, and introduces stability in costs moving forward.

Building on some of the comments provided earlier, solar energy is unique in that the cost of the energy is fixed at the point you put the installation in. And solar has -- because it's a peaking resource, has an opportunity to stabilize the cost of what are some of our most vulnerable cost components in the overall energy supply. So we think that solar can become not just a low-cost alternative, but a stable cost alternative. And it really has a unique role to play, therefore, in the energy architecture.

I also want to point out that the reality is, current New Jersey policy only calls for 2 percent of our energy to come from solar by the year 2020. And for a variety of reasons that I laid out in my written testimony, solar can do a lot more than that. Two percent is a miniscule component of what solar can contribute. The de facto situation today is that the authorities are currently constraining solar development in the State of New

Jersey because of concerns about overbuilding. And there's a variety of things that can be done to both increase the goal and make, in fact, quite a bit more solar available.

And in closing, I just wanted to hit one point, and kind of emphasize something that Steve Gabel mentioned earlier. The legislation focuses on establishing the goals. We think that's extremely important. But what we've seen in energy policy in the State over the last couple of years is that we start with really good policy, but there's a lot of implementation detail that then never follows through. And I would ask the legislation to consider what specifics can the legislation get into, to provide both clear legislative intent and clear authority, so the State agencies can actually take action, follow through, and make this real. Otherwise, the best policies without follow-through are meaningless. And we'd like to let this legislation be different than what's happened in energy policy in the last couple of years.

Thank you. (applause)

ASSEMBLYMAN McKEON: Thank you very much.

Sir.

R O B E R T W. S I M P S O N: I'm Bob Simpson, and I have a little business called Brother Sun Solar. And I'm here speaking on my behalf, not just the other groups that I'm involved with, one of which is the Wayne Environmental Commission. As some of you may know, we are in the process of putting together a cogeneration facility in Wayne, as we speak.

This afternoon I heard a distinguished scientist named James Hansen, from the NASA Goddard Institute of Space Science. He's probably the guy who set off, in the United States, this concern. And he's

come up with a figure, which is basically that we had 10 years -- and that was a year ago -- 10 years to make up our mind and get something moving or we face a catastrophe. This is an emergency, if he's right. And he's one of the foremost scientists in this field. Ten years, then the global warming problem becomes serious -- very, very serious. It's not too late.

I support these two bills, Senate and the other bill, but I have concerns because I don't understand -- I don't see any teeth to it. According to what I read, through the bill -- and I did read it -- it's not until January of 2012 that the first global warming reduction requirement will take effect. That means six years into this 10 years that Hansen says we have. I don't know whether in the remaining four years -- if something doesn't go right in those first six -- I don't know whether we have that chance. I would suggest that we need to begin implementing now what we already can discern as solutions. We need action, concrete action immediately.

I would like to suggest some items to be added to these bills to begin the action/solution part of the program immediately -- some teeth to bite this bullet of global warming. This is, as I said, an emergency.

Based on a recent study by Navigant Consulting, America could provide as much as 86 percent of total U.S. residential electricity demands using photovoltaic solar energy. We've just scratched the surface, and we have to put more into that -- much, much more; magnitudes more. Unfortunately, the question is, where does the money come from? I'm going to suggest something very unacceptable to most people, and the expert that I referred to before agrees, I think: We need a carbon tax. We

need a way to discourage the burning of these fuels that are creating this problem. (applause) I think it's more popular than I think.

And I would like to just suggest that an energy visionary by the name of Peter Barnes, who wrote a book called *Who Owns the Sky?*, made a suggestion. And he said add this tax on in some way, and then take that -- because unfortunately, taxes hurt the poor worse than the rich. But if you take that tax and cut it down the middle, and return half of the proceeds of that tax to every citizen in New Jersey, they'd get something back. Those who are spending more on gasoline aren't going to get as much back, but the poor will get their part back.

ASSEMBLYMAN McKEON: Sir, I've got to ask you to wrap up. There's a lot of other people who would like to speak.

MR. SIMPSON: Yes.

I have a list of -- you've got a copy of it. Okay, good.

ASSEMBLYMAN McKEON: We do. We have your written testimony.

Thank you.

Mr. Glick.

MR. SIMPSON: Okay, good.

ASSEMBLYMAN McKEON: Thank you.

Mr. Glick.

T E D G L I C K: Yes, I thank you for this hearing and thank you for this opportunity to speak. I'm here representing the New Jersey Climate March. There is going to be a four-day march beginning at Rutgers-New Brunswick on April 13. We're going to be going to Princeton; we're going to be going to the College of New Jersey; and we're going to end up in

Trenton on Monday, April 16. We're going to be in front of the State House on that day. I hope that many of you, whom I'm speaking to, both in front of me and behind me, will be there on April 16. We are going to be meeting with legislators and we are going to be doing everything we can to see that this legislation is passed.

This action that we are doing is part of a national day of action. There is a campaign called Step it Up. There are over 600 actions so far -- and that was a week ago; they continue to grow -- over 600 actions around the country that are taking place on this same weekend on April 14. There is no question but that there is a very strong grassroots movement that is growing on this issue all over the country among mayors, in religious communities, among students, and communities. And that's a good thing, because this is such a deep crisis.

So again, I would urge you to be with us as part of this New Jersey Climate March. People can check that out at our Web site, *njclimatemarch.org*.

Just one more thing. This maybe -- I hope none of you take this personally -- but there's a quotation from a Tim Flannery, who wrote an excellent book called *The Weather Makers*, that I just recently finished. And there are a couple of sentences that I'm paraphrasing. He was talking about solutions. He said, "Don't just ask elected officials what legislation they support, ask them what they are doing personally to reduce greenhouse gas emissions." And I'd submit that's true for legislators, it's true for us as citizens -- that we need to take this issue very personally so that every day we think about it. We think about how we're living our lives; we think about how we are getting our government to take the action necessary.

This has to be the issue of this decade, of this year, and for years to come, because it is so critical.

Thank you. (applause)

ASSEMBLYMAN McKEON: Sir, thank you very much.

All right. I'm going to-- We unfortunately won't get to everybody who signed up, but we did pretty good. We got through about 30 people today. I have four more witnesses I'm going to call now, if you could limit your comments to a couple minutes; and then I have a group of students, that have been incredibly patient, that I'm going to end things with; and then give members of the panel a moment to wrap up. Okay?

If you didn't get to testify today, please join us down in Trenton on the 26th; you'll get priority as it relates to testifying.

Mr. Russell, of Montclair; Mr. Mercurio, of Island Wind; Mr. Brown, of Global Learning; and John Sprague, of LEED Planet (phonetic spelling).

Thank you.

Yes, please. And again, I do apologize to those that we didn't hit. Obviously, there's staff members in here, some of whom have traveled as much as two hours from home -- to get back there. So I'm trying to be mindful of everybody's schedule.

G R A Y R U S S E L L: I want to thank Assemblywoman Stender and Senator Buono for their leadership on this bill, and also Chairman McKeon for hosting this conference this evening.

I think international agreements are very important for any kind of treaties and conventions for global warming initiatives, but they're extremely difficult to initiate and to achieve consensus. National leadership

also is critical, but it's also difficult to forge. And with our current administration, it's virtually nonexistent. I believe that at state and local level is where we're going to really need to make the change that has to happen, to make the changes we need for protecting our environment and protecting our country from the worst effects of climate change. And this proposed legislation would establish New Jersey as a leader.

I agree with Chairman McKeon's fondness for Thomas Edison -- he's a big hero for me -- and I think that he would be one of the first to advocate a societal switch from his incandescent light to a newer, improved, more energy-efficient compact fluorescent bulbs. And they, themselves, are a great example of new products that are available that are part of the solution.

Municipalities in New Jersey are really where the change is going to have to come. We're going to be hit the most severely at the municipal level, both from increased ground-level ozone or smog. And we've heard already about our coastal regions, but there are other effects, from either increases or decreases in precipitation, which will have detrimental effects on our municipal water supplies.

Municipalities, both towns and cities in New Jersey, also are responsible for the solutions that can help to remediate the problems of climate change. Because municipalities choose fleets of vehicles -- they buy fleets of vehicles, both cars and trucks. They choose and use the fuels for these trucks. They plan communities that will either be mass-transit friendly or else they're going to be sort of sprawl communities. And consequently, municipalities really need to be able to effect some of the

changes that are going to prevent some of the worst ravages from climate change.

In the town of Montclair, we've been taking some steps to be a more sustainable community. We are switching some of our vehicles to alternative fuels. This Spring we're going to switch our entire truck fleet to biodiesel B20 blend, of 20 percent biodiesel, which is a vegetable-based -- not petroleum -- renewable resource, which will have an immediate reduction on our CO_2 emissions.

ASSEMBLYMAN McKEON: I'll ask you to--

MR. RUSSELL: Yes.

And we've taken many steps-- There are very immediate changes that municipalities can take, and this is really, I think, where the transformation that our society needs is going to happen -- is at that local level. It's where citizens have the most voice. And if we can implement this bill, that's really going to provide the leadership that New Jersey needs.

Thanks very much.

ASSEMBLYMAN McKEON: Thank you very much, sir.

J E F F R E Y L. B R O W N: My name is Jeff Brown. I'm the Executive Director of Global Learning, a nonprofit educational organization in Brielle, although we were founded down the road in East Orange and lived in Montclair for many years.

I'm here to support the act and, in particular, to ask the Legislature and the implementing State agencies to view the educational sector as a practical and vital ally in meeting this global challenge.

Two points to begin with: I work with schools, and in most schools, no one has a clue how much energy their building uses or abuses.

They therefore have no clue how responsible their usage is or how their school compares with any other schools, whether in the district or across the state. Thus, there is generally little to no attention paid to practical measures that can save a significant percentage in energy usage.

Secondly, last year in our Green Schools Program, which is an energy conservation/education program, we helped Brick Township and Toms River schools save more than $300,000 in energy costs and reduce their greenhouse gases by more than 1,500 metric tons. The paper tells you how, a little bit.

As you know, there are approximately 19,000 school buses in New Jersey, about 2,400 public school buildings, a similar number of private school numbers. So that when you realize that 25 to 30 percent of energy in buildings is generally considered to be wasted, you see that New Jersey schools have a major role to play in reducing the demand, which is important for the goals of your legislation.

Given our experience with this energy education program and this problem of monitoring usage in schools, I would like to make several specific recommendations for you to consider: One is to establish a statewide goal for energy reductions in all school buildings of at least 10 percent by 2012, and at least 20 percent by 2020, which matches your goals. Establish a simple public reporting mechanism in a State agency -- whether it's the DEP, the BPU, or the Department of Education -- for the annual energy usage of each school's major electric and gas accounts. Thirdly, require public school districts, and encourage private schools, to submit annual reports to this mechanism for each school building's major energy accounts. And fourth, require the public agency to report these

figures annually, standardized by square-footage, for public review and statewide comparisons. I believe this would help schools and students see themselves as solutions to this problem. And as John Cusack said, the greenest kilowatt is the avoided kilowatt.

Thank you. (applause)

ASSEMBLYMAN McKEON: Thank you very much. Good suggestions.

Sir.

M I C H A E L M E R C U R I O: Mike Mercurio, Island Wind; and am also an AWIA member, and I do R & D in the wind industry. And I want to say, the State should really go forward with both wind and solar. As a combination, it can give us 340 days of renewal energy around the clock.

New Jersey has one of the greatest natural resources off the coast and along our coastlines. I live on the coastline and I can attest to what the scientist said. Because since 1989, where my boat is, the sea level rise has come up exactly 16 inches on Long Beach Island. And I can attest to that. That's one of the reasons I got into the wind industry -- I love the wind. I've had a passion for it since I've been a kid, at 7-years-old, building kites.

The point being is, we need to adopt the policy. China has commented on us, because everybody can always point the finger. Whether it's India, China, or the United States, it has to start in everybody's backyard. And I believe New Jersey should start it in our backyard of our country. It might be we have all these problems to exist, that can -- we can do it as a people. We've done it before. The Pilgrims came over here by

wind. We've used wind, to a hundred years ago. Let's use wind again now in this state.

Thank you.

ASSEMBLYMAN McKEON: Thank you very much.

I like your (indiscernible).

Okay. Last but not least, again, you guys don't have to go to school -- you go a little late tomorrow, okay? Not a problem.

Erin Hicks, Lilly Solomon, Sonya Cole, Doug Cohen -- they are the Youth Social Action Club for the U.S. Partnership for Sustainability. They're from neighboring Maplewood, and we're going to give them our attention for a few moments.

If-- You know what, the microphone that -- you're going to have to pass that one around. (referring to PA microphone)

What grade are you guys in?

J O N A H W O L F F: We're in the 5th and 6th grade.

ASSEMBLYMAN McKEON: The 5th and 6th grade. Excellent. You have rule of the school, but next year at middle school, you'll be--

MR. WOLFF: We're actually in the Maplewood/South Orange District, Mr. Chairman.

ASSEMBLYMAN McKEON: Okay.

MR. WOLFF: We are here today to represent YSAC, which is our Youth Social Action Club that we've organized in Maplewood and South Orange. And you know, when I came here, I kind of thought to myself, "Well, here we are in this cafeteria in West Orange, New Jersey, and we're trying to change the world." (laughter) It's entirely possible. And

that's what we have in mind when we do what we do. But you would really wonder, why would a group of kids our age really care? And I'm going to pass the mike to Erin Hicks.

E R I N H I C K S: We are concerned about global warming because, when we are older and it has taken a big effect on the planet, we will be the ones who suffer floods and unbearable heat. This planet is the only one we have, and it is horrible for us to destroy it. People will die; crops won't grow; and animals will become extinct. It is time to take action and help end global climate change. One small thing can make a big difference when we work together. (applause)

MR. WOLFF: Definitely, Erin.

But we, as a group, do have the ability to do many things, and here's Lilly Solomon with what we have done.

L I L L Y S O L O M O N: Thank you.

We have tabled in Maplewood and South Orange, and we were selling compact fluorescent light bulbs. And we donated the profits to Clean Air-Cool Planet. We also try to get people to sign up for the Clean Energy Program, which is when PSEG is required to purchase the amount of energy you use in renewable sources, if you pay a bit of extra money on your electricity bill. And we also wrote letters to our local newspaper. (applause)

MR. WOLFF: Yes.

And we have done, like I said, a lot for this cause. But we can't do it alone, nor can any one person. We need the help of the State, Federal, and local governments to do their part. And on that note, Sonya Cole.

S O N Y A C O L E: You have now heard about what -- why we care and what we have done. We also have come in support of this bill, and this is why we think that the New Jersey government-- (laughter)

ASSEMBLYMAN McKEON: Why are you laughing when you said New Jersey government? I don't like that. (laughter)

MR. WOLFF: Sonya?

ASSEMBLYMAN McKEON: Go ahead, do your best, if you can read it.

MS. COLE: And this is why we think New Jersey government-- (laughter)

ASSEMBLYMAN McKEON: You see, I have three young daughters, so I could definitely make you laugh. If you -- the sum of what you're going to say, I hope, is that New Jersey government and our Federal Government should move to support wonderful citizens like you. Does that sound about right?

MS. COLE: Yes.

ASSEMBLYMAN McKEON: Okay. And whose mom and dad is this, that we should introduce?

D O U G L A S C O H E N: Me? I'm a community volunteer, supporter.

ASSEMBLYMAN McKEON: Well, thank you for whatever you've done in organizing this wonderful group of young people. We appreciate it. This is what it's all about when it comes down to it. Because there are four children, but they're all of our children. And we appreciate your testimony. You all should be commended. You're wonderful citizens, and I invite you to come down to see all of us in Trenton sometime as our

guest. Hopefully, you can come down on a session day and visit, and maybe we can even get you in to see the Governor. Okay? (applause)

Thank you very much.

All excellent.

MR. WOLFF: Thank you.

ASSEMBLYMAN McKEON: If I can briefly -- I want to briefly -- but give my colleagues the opportunity, if they'd like, to give some closing comments. I'll start in reverse order, with Assemblyman Manzo.

ASSEMBLYMAN MANZO: I just wanted to thank, again, all of the organizations that came out tonight for your impetus behind this movement. As I said in the beginning, and I'll say it again and again, we need you out there all the time and in growing numbers to make this happen, not only in our state but across our nation. We're taking a bold step here in being one of the first states to take a step behind this bill.

We heard your comments on other things you'd like to see added to the bill, and I'm sure next Monday we'll take a bold step forward in putting New Jersey on the map, and with great voices and great support behind us.

Thank you very much for your support. (applause)

ASSEMBLYMAN McKEON: Either Bob or Linda, whatever.

ASSEMBLYWOMAN STENDER: Okay. I just also want to thank you, Mr. Chairman, for having this hearing here this evening; and for everybody's participation. It seems clear to me that this is an issue where the public is really ahead of government, in terms of where they want us to be with public policy. And I think we have a good opportunity here to keep

faith with people in terms of where they want their government to go. And I look forward to continuing to take testimony next week.

Thank you very much. (applause)

ASSEMBLYMAN McKEON: Thank you, Assemblywoman.

ASSEMBLYMAN GORDON: I'd just like to add my thanks to everyone who came out tonight and for your very helpful testimony. I think there is an opportunity here for New Jersey to take the lead, and lead the rest of the nation to a sound energy policy and to address this most pressing problem of climate change. And I look forward to working with the groups that were here this evening, as we move forward.

Thank you very much. (applause)

ASSEMBLYMAN McKEON: Thank you very much.

And again, thanks to everybody who helped, logistically, put this together; and my abiding respect and admiration for both partisan and nonpartisan staff who are incredible public servants. And I appreciate all of your hard work. And safety on your ride home this evening.

As it relates to where we're going next week, any of those who signed up who do come to Trenton will get priority to testify at our next hearing, and you can be guaranteed. And we'll stay as long as it takes to hear what you have to say to us.

We will take under thoughtful consideration all of the written testimony that was submitted to us. We do read through that, and it becomes part of the record.

And lastly, just kind of ending where I began -- and I hope the primary sponsor will consider any friendly amendments by some of those who you heard from today. You know, the devil is in the detail. I think

there is some concern -- that the goal that we're putting forward in this legislation clearly is laudable, and it's something we have no choice but for to achieve. The devil is in the detail of that. And perhaps some of the things we talked about and learned of tonight, we can be a little more specific in the legislation, in giving DEP some better direction as to helping or understanding our intent in meeting our goals.

So with that, again, many thanks to all.

And this meeting is adjourned.

(MEETING CONCLUDED)