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DCMN HERZFELD

THE ROLE OF OFFSETS IN CLIMATE LEGISLATION

THURSDAY, MARCH 5, 2009

House of Representatives,
Subcommittee on Energy and Environment,
Committee on Energy and Commerce,
Washington, D.C.

The subcommittee met, pursuant to call, at 9:34 a.m., in Room 2322, Rayburn House Office Building, Hon. Edward J. Markey [chairman of the subcommittee] presiding.

Present: Representatives Markey, Inslee, Butterfield, Matsui, McNerney, Dingell, Boucher, Green, Capps, Gonzalez, Baldwin, Matheson, Barrow, Upton, Hall, Whitfield, Shimkus, Pitts, Sullivan, Burgess, Scalise and Barton.

Staff Present: Matt Weiner, Legislative Clerk; Ben Hengst, Senior Policy Analyst; Melissa Bez, Professional Staff; Joel Beauvais, Counsel; Lindsay Vidal, Press Assistant; Peter Spencer,

Minority Professional Staff; Andrea Spring, Minority Professional Staff; Amanda Mertens Campbell, Minority Counsel; Garrett Golding, Minority Legislative Analyst.

Mr. Markey. Good morning.

The basic concepts behind carbon offsets is quite simple. If you could achieve global warming pollution reductions outside of an emissions cap at a lower cost than can be achieved than under the cap, then you can get credit for doing so. The theory is that you save money, and the atmosphere doesn't know the difference.

That is the theory, but in practice offsets turn out to be one of the more challenging aspects of designing effective climate legislation. On the one hand, offsets have the potential to meaningfully reduce compliance costs. Unlike price caps they can do that while achieving needed emissions reductions. As a result, offsets can act as a bridge, allowing us to take on tougher near-term emission reduction targets than might otherwise be possible. That can give us time to develop the low-carbon technologies that we need. Offsets can also provide an opportunity for key stakeholders.

Outside the energy and industrial sectors like farmers and foresters to get in the game on climate change. They can help fund activities like tropical forest conservation that have environmental benefits going beyond climate change. And finally, a properly designed offset program can provide a powerful lever to get major developing countries to take action on climate change.

For all these reasons offsets play a key role in the

blueprint for legislative action recently put forward by the U.S. Climate Action Partnership, which, as you all know, includes a range of leading U.S. businesses and environmental organizations.

Offsets are a part of every existing cap-and-trade system. They are also a part of virtually every piece of proposed climate legislation, including my iCAP bill that I introduced last year.

Having said all that, offsets raise a number of real concerns that must be addressed. The first is the risk that some offsets could turn out to be hot air. Several of our witnesses today have testified that this has happened under the Kyoto Protocol's clean development mechanism. It surely is happening in the unregulated voluntary carbon market, as I learned last Congress when I heard the first congressional hearing on that market in the Select Committee on Energy Independence and Global Warming.

If offsets fail to deliver real reductions in global warming pollution, they will compromise the emissions cap. That is unacceptable given the urgency of the climate crisis. There should be no debate that if we are to include offsets in climate legislation, they must be subject to conservative science-based standards. Rigorous monitoring and verification requirements must also be applied.

We should be every bit as concerned with offset quality as we are with enforcement of pollution controls. For that reason I strongly support the concept of an independent science advisory committee to oversee the development, implementation and periodic

updating of an offsets program.

Offset quality isn't the only thing at stake here. If we rely too heavily on offsets, we will not drive the technology transformation that we need. Necessity is the mother of invention. If we dull the incentive for innovation, we will not get the deep cuts in emissions that science tells us we need. We will also miss a crucial opportunity. If we don't spark a clean energy revolution here in America, we will be left behind in the global competition for the clean-tech market.

For all these reasons we need to strike a balance between strong targets and timetables for emission reductions and an appropriate but limited role for offsets in helping to meet them. These are complex issues, but I believe that they can be addressed in a way that strikes the right balance. We have an outstanding panel here this morning to help us to do just that. We welcome them here today.

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Mr. Markey. And let me turn and recognize the Ranking Member of the subcommittee, the gentleman from Michigan Mr. Upton.

Mr. Upton. Well, thank you, Mr. Chairman. I, too, want to thank our witnesses for joining us this morning.

Cap-and-trade plans that we have seen so far rely to varying degrees on carbon assets, both international as well as domestic. For example, USCAP, who testified before the committee a month ago, is calling for a 1.5 billion metric ton of domestic and 1.5 billion metric tons of international offsets. The theory behind those offsets is that they decrease emissions from uncapped sectors, allowing greater emissions from capped sectors. In theory this is a zero-sum game.

In 2008, the offset market in developing countries derived from the U.N. Framework on Climate Change was over \$12 billion, and these offsets have been subject to criticism on the grounds that projects have not achieved real emission reductions. The role of offsets in climate change legislation could mean a multibillion-dollar windfall for China and other countries that won't necessarily be subject themselves to a cap on carbon. In exchange for those billions, there may not be any real emission reductions.

It defies reality that we are even considering spending money on offsets to offshore countries as our own economy is certainly hemorrhaging, particularly in Michigan. We should be investing in

our own infrastructure here at home.

Last year Congress got a taste of what the carbon offset market was all about. The CAO of the House cut an \$89,000 check out of the taxpayers' checkbook to buy carbon credits, and some of that money went to farmers in North Dakota for tilling practices that apparently they were already using. According to the Center for American Progress, a group that strongly supports climate legislation, it didn't change much behavior that wasn't going to happen anyway. It just demonstrated why offsets are controversial and possibly pointless. That is a waste of taxpayer money.

In conclusion, there are a number of problems with carbon offset markets both in the U.S. and abroad that need to be examined and addressed. If we are relying on offsets, we must ensure that the money spent on offsets is having a real tangible and verifiable environmental benefit that would not have otherwise occurred. Seeing the issues that we have had with our voluntary domestic carbon market, I can only imagine how these issues will be compounded when the value of potential offsets increases and we are relying on verifying offsets in the developing world.

I look forward to the testimony today, and I yield back.

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Mr. Markey. The gentleman's time has expired. The Chair recognizes the lady from California Mrs. Capps for an opening statement.

Mrs. Capps. Thank you, Mr. Chairman, but in the interest of more question time, I will pass.

Mr. Markey. The Chair recognizes the gentleman from Utah Mr. Matheson.

Mr. Matheson. I will waive as well.

Mr. Markey. The Chair recognizes the gentleman from Georgia Mr. Barrow.

Mr. Barrow. I will waive.

Mr. Markey. The Chair recognizes the gentlelady from California Ms. Matsui.

Ms. Matsui. Thank you, Mr. Chairman. I am very pleased to be here today, and thank you for your continued focus on climate change and your efforts to craft a comprehensive bill.

I would like to also thank today's participants and panelists. We all appreciate your time and expertise on these matters. And I will only take a minute so you can get to your important testimony.

I am glad that we are here to explore the concept of offsets. I feel that this idea has merit and could be an effective tool in order to reduce harmful greenhouse gas emissions; however, I look forward to hearing the true facts today. While offsets could be a

way for our Nation and our planet to reduce emissions, I want to make sure that any offset provisions truly work. I want to make sure that we are actually helping our planet and not simply moving the goalposts.

In California we have made it very clear that all offsets must be real, permanent, quantifiable, verifiable, enforceable and additional. These should be Federal requirements as well. I strongly believe that offset projects must have rigorous scientific backing and actually provide a quantifiable benefit to the planet. I hope our witnesses today can help us all understand how offsets can help and potentially hurt our legislative efforts.

With that, once again, Mr. Chairman, thank you for highlighting this important issue. I yield back.

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Mr. Markey. The gentlelady's time is expired.

The Chair recognizes the gentleman from Illinois Mr. Shimkus.

Mr. Shimkus. Thank you, Mr. Chairman.

First, a question. Do you know when the cameras in this committee room will get fixed? I have never known you to be camera shy. This hearing and these climate change hearings are too important for the cameras in this committee room not to work so that the public in this country can see the debate on these issues on climate change. And this is not the first hearing we have had where the cameras have not worked. Can you tell us when the committee leadership might get around to fixing these cameras?

Mr. Markey. Well, honestly I did not know that the cameras weren't working.

Mr. Shimkus. I knew you didn't know. But if you look right there, they are turned facing each other.

Mr. Markey. I can see that right now, and it looks like they are very interested in each other. The good news is that there is an audiocast.

Mr. Shimkus. That is not the same.

Mr. Markey. I agree that is not the same. Let us just agree on this, okay. Especially in a carbon offset hearing this is very important, because the interest in this is about as high as watching grass grow. And literally that is what this is about; it is about where we can watch grass grow and trees grow.

Mr. Shimkus. After you hear my opening statement, you will have a different opinion.

Mr. Markey. Honestly, you have drawn my attention to it. After 22 years as the Ranking Member on the Telecommunications Committee, I have a high, high interest in ensuring that there is full video coverage transmitted around the world, and hopefully into the cosmos, so it can be preserved forever and circulating for eons, this hearing. And I promise you that I will do my best to find a television technician to be able to fix this camera problem which I did not know existed. And I am glad that you brought it to my attention, and we will do it as quickly as possible.

Mr. Shimkus. Thank you, Mr. Chairman.

This was a debate on policy. My time is out, but can I --

Mr. Markey. I can grant you an opening statement offset, okay, for the inquiry which you made. And the Chair is willing to recognize the gentleman for 2 minutes.

Mr. Shimkus. Thank you, Mr. Chairman, and I appreciate that. But no one is assuring my mine workers an offset on their jobs. And we can laugh all we want, but as we have shown, 1,000 mine workers lost their job the last time this House passed an air quality bill. One thousand. Peabody number 10, Kincaid, Illinois. Just check the records.

So we can joke all we want, but a climate change cap-and-trade provision is going to be deadly to the fossil fuel

industry in this country, and that needs to be exposed publicly, and it needs to use a full capacity of C-SPAN to do that. And I wouldn't want to say there was an intentional use of not having C-SPAN coverage, but I will tell you it is unique that someone who has been so versed in using new media, that this is now, I think, the second climate change hearing where we haven't had coverage.

So, I mean, all kidding aside, I am taking this debate very seriously because I have seen the job loss and job dislocation. And I want to highlight this is part of the hypocrisy index that we are seeing coming from this congressional leadership and this administration. First they want to cut the deficit in half first term, and they add \$1.5 trillion to the national debt in 6 weeks. Then they don't want to accept, and the President will not sign, bills that have earmarks; however, he is probably going to sign this omnibus bill that has 9,000 earmarks. I think there is some hypocrisy.

Finally, as it relates to this provision and this bill, the President promises 95 percent tax cut for all Americans, but climate change in his budget will create a tax increase on average citizens on average of \$700 a year to \$1,200 a year. Now, that dwarfs to the \$400 tax cut that we just have gotten in the stimulus bill. So there is a hypocrisy here.

As I said last year on this debate, the congressional Majority that attacks NYMEX, a trading floor for distortion of the cost of energy, are now going to empower a new exchange on climate

and carbon to do this. So I think this is very serious. Again, I would challenge you to get your leadership to get this on C-SPAN so we can fully inform the public.

I yield back my time.

Mr. Markey. I thank the gentleman.

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Mr. Markey. Just a little historical background on the whole issue of C-SPAN. This was an issue that was raised by Albert Gore and myself and others back in 1978 and 1979 with Speaker O'Neill, who had an initial reluctance to broadcast these hearings. But having been pressed by a small number of us that really wanted to see televised congressional deliberations, he acceded to that request. It took 3 years for the Senate to finally accept that as well, and they did so because of the amount of attention which the House received from the public coverage of the hearing. So since I was one of the initiators of the coverage, and the senior Members at that time were not interested in it, I can promise you that it is my intention, and I am sure Chairman Waxman's intention as well, that whatever technical problem exists be corrected as soon as possible. And we will do that. And I can give the gentleman my word on that.

Mr. Shimkus. Thank you, Mr. Chairman.

Mr. Markey. Let me turn then and recognize the gentleman from Texas Mr. Green.

Mr. Green. Mr. Dingell.

Mr. Markey. I am sorry, I did not see Mr. Dingell. The Chair recognizes the gentleman from Michigan Mr. Dingell.

Mr. Dingell. Well, I thank both of my colleagues, and I thank my friend from Texas, who is always a gentleman and gracious in all ways.

Mr. Chairman, thank you for holding this important hearing. I commend you for building a strong record and for making a strong case for swift and well-thought-out action on climate change.

It is crucial that we find a way to reduce greenhouse gas emissions to avoid dangerous harm to this planet. It is also crucial that we do so in a way that protects our economy, a very difficult task, but one which is doable with proper effort by this committee and by proper leadership from you and your colleagues here.

I have heard from industry that allowing some use of offsets is the best way to control the cost of a climate change program. With this statement I agree. I would note that EPA's analysis of the Lieberman-Warner bill bears this out. It projected that the use of offsets could decrease allowance prices by up to sevenfold if offsets were allowed and properly used.

Last year when my good friend Mr. Boucher and I put forward a draft comprehensive cap-and-trade bill, we included in the draft an offset program that would allow offsets to be used for up to 5 percent of each entity's compliance at the start of the program, increasing to up to 35 percent after 2025. I would note that this bill is available to this subcommittee as it goes about its business, and I would note that this bill, or the suggested draft, contains matters which are approved by both environmentalists and by industry. And indeed the draft is one which makes great good sense from the viewpoints of both sides.

Other groups, including USCAP, a coalition of industry and environmental groups have called for the greater use of offsets, particularly in the early part of the cap-and-trade program, to keep allowance prices at levels necessary to avoid economic harm to our economy and to our industries. I welcome and encourage this debate, and I urge this committee to consider the views of USCAP and others who believe that offsets are a useful and necessary tool. And in encouraging this debate, I do so because when Mr. Boucher and I introduced our draft, this is exactly the kind of feedback that we hoped to get.

It is also essential that the use of offsets maintains the integrity of emissions reductions. That is why our discussion draft would require that offsets be vigorously verified for quality and regularly assessed to ensure that they are quantifiable, permanent and enforceable. I urge the committee to keep this thought in mind, because there is a fine possibility here for rascality and misbehavior.

I will also note that in the prepared testimony today by our witness from GAO, Mr. John Stephenson, the Director of Natural Resources and Environment, the GAO encourages Congress to establish, one, clear rules for offset compliance; two, procedures to account and compensate for uncertainty; three, a standardized registry for tracking the creation and ownership of offsets; and four, procedures for amending the offset rules as new information becomes available.

The draft submitted by Mr. Boucher and I achieved all of these recommendations because we had great apprehensions about this. And I encourage members of this committee to explore the carbon offset program that we have set forward when considering cap-and-trade legislation in this Congress. I look forward to hearing from our witness today as we explore this important issue in more depth.

Thank you Mr. Chairman.

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Mr. Markey. The gentleman's time has expired. The Chair recognizes the gentleman from Texas Mr. Barton.

Mr. Barton. Thank you, Mr. Chairman, and thank our witnesses for being here today. This is an important hearing, the role of offsets in climate change legislation. I am not sure we need climate change legislation, as you well know, Mr. Chairman, but if we do need it, offsets might be something we could do theoretically if they work, which I don't think they do in Europe. And that is what we are going to talk about.

The European Union has been trying something called the Emissions Trading Scheme and their corresponding Clean Development Mechanism, and from what I can tell it has cost them jobs, and I think it has cost them credibility. Their sale of these credits seems to be almost impossible to verify, and they don't seem to actually be resulting in reducing emissions.

Last December the Government Accountability Office released a report about their ETS and CDM, international carbon offset scheme. I also, several years ago, along with Mr. Whitfield of Kentucky, asked the GAO to examine how well the ETS and the CDM actually controlled greenhouse gases and whether available information substantiates the net benefits of the program. Our intention and request in the GAO's assessment of their lessons from the international experience is that their experiences should apply to upcoming congressional deliberation of these carbon

energy-rationing schemes. That is the purpose of your hearing today, and again I commend you for that.

What the GAO found is they could not substantiate -- I want to repeat, could not substantiate -- either emissions reductions or clear economic benefits, and that the negative economic effects could occur if the EU further reduced emissions allowances. This GAO report, in my mind, raises serious doubts about the effectiveness of any carbon emissions reduction scheme. If nothing else, the failure of the ETS and the CDM show that the Federal Government shouldn't have spent taxpayer dollars on uncertain and unverified benefits.

The GAO found that the CDM's impact on emissions reductions and sustainable development has been limited, and that it is, and I quote, nearly impossible, end quote, to ensure that international offset projects are additional to what would happen anyway absent the offset subsidy.

The use of carbon offsets in a cap-and-trade system can undermine the system's integrity because it is simply not possible to ensure that these credits represent a real, measurable and long-term reduction in emissions.

In a companion report the GAO found that there was wide variability in the quality of the offsets. The incomplete and conflicting data on the use of the offsets and the multitude of quality assurance mechanisms severely limited the market's transparency.

Just as an aside, Mr. Chairman, I am sure you know that the congressional purchase of offsets that Speaker Pelosi initiated several years ago has been suspended for the very reason that they can't guarantee that the offsets are really what they appear to be. What the American people need to know right now is not another murky financial market to lose their hard-earned dollars. Indeed, it would be more than ironic if we in the Congress this year have a hand in creating a derivatives market for carbon offsets on the heels of what I consider to be a total meltdown that we have just seen in the world of financial derivatives.

Aside from the financial concerns, if the goal of a cap-and-trade tax plan is to reduce greenhouse gas emissions, the GAO found the use of offsets could actually undermine achievement of emission reduction goals and delay technological development. In the European Union with its costly cap-and-trade tax scheme and offsets market, it decreased the CO₂ emissions on paper by .3/10ths of 1 percent. In contrast, here in the United States, where we don't do any of that, our CO₂ emissions have been reduced by double the amount of .6/10ths of 1 percent.

Since the GAO report appeared on the scene, I have heard a lot of backpedaling and sugarcoating from proponents of the cap-and-trade regime, Europeans and Americans alike. All of a sudden they say this ETS/CDM scheme is just a pilot program, or it is just a dress rehearsal. Proponents claim that now that the EU countries have learned their lessons, they really will get

reductions in CO2, and they really will have something to show their citizens after they spend all their money on the past offsets and allowance program.

This PR campaign to greenwash the failure of the ETS and CDM further underscores concerns that we should have about not following Europe's course as it creates a potential economic disaster for its citizens. I guess, Mr. Chairman, you could say I am undecided about the benefits of this particular scheme, and I do really appreciate you holding a hearing on it.

Mr. Markey. I thank the gentleman. I thank the gentleman for keeping an open mind on this issue. Thank you.

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Mr. Markey. The Chair recognizes the gentleman from Texas Mr. Green.

Mr. Green. Thank you, Mr. Chairman. And I appreciate you not only having this hearing, but our series of hearings on climate change and the solutions we have.

Today's hearing reflects on the critical role that cost containment mechanisms must play in any congressional efforts to reduce greenhouse gas emissions. Many governmental and private-sector studies have concluded that efforts to reduce carbon emissions will have substantial costs to our economy. President Obama's 2009 budget, for example, assumes a cap-and-trade program that reduces greenhouse gases 83 percent below 2005 levels will generate \$645 billion to the Treasury over 10 years. Any cap-and-trade program must include an honest discussion on how to reduce the regulatory cost of compliance for both businesses and consumers while protecting the environmental integrity of the program.

Most legislative proposals permit regulated entities to purchase carbon offsets or greenhouse gas emission reductions in one place to make up for the emissions elsewhere in lieu of reducing on-site emissions or purchasing additional emission allowances. Carbon offsets are currently utilized under the European Union's trading scheme, ETS, through the Clean Development Mechanism, CDM, and Kyoto program, permitting nations

with binding emission limits and active emission reduction projects in developing countries without emission limits. The use experience of CDM provides a valuable insight into potential benefits and limits of carbon offsets with any U.S. climate program.

Most experts agree that carbon offsets to be effective must be additional, quantifiable, real and permanent. Disagreement lies in what defines these key terms and ensure that offsets aren't simply phantom reductions that can be gained by savvy entities or carbon market players. Congress must also pay careful attention on how to best structure the carbon offset approval and management process, establish offset limits and price volatility mechanisms, and encourage developing countries to transition from offsets to binding emission targets.

I look forward to our testimony today. I guess my concern is, coming from Houston, Texas, and the home of what used to be Enron, we watched a transmission and energy company turn into a trading company. And as my colleague from Texas mentioned, we are seeing the trading in financial services, actually the tail wagging your dog, in the same thing we could see this. And we have to get it right. I don't want 5 or 10 years from now a committee in Congress sitting there and saying, okay, who voted for the 2009 bill, similar to what we did to the 1999 bill, to free up the flexibility that we are seeing in the financial industry and see all the problems it is wreaking havoc on.

So, Mr. Chairman, I appreciate it. We need to learn from the misexperience of the European example and see if we can make it work. And I yield back my time.

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Mr. Markey. The gentleman's time is expired. The Chair recognizes the gentleman from Texas Mr. Burgess.

Mr. Burgess. I thank the Chairman.

You know, a simple trip to the search engine of choice on the Internet and typing in the phrase "carbon offset fraud" will give you tens of thousands of Web sites, news stories, YouTube clips, all discussing the idea that carbon offset programs are indeed, as Chairman Dingell alluded to, a fertile field for dishonest minds. So I am interested to hear from our witnesses today and hear what they have to say about including the carbon offset programs in the committee's cap-and-trade legislation.

Now, according to the August 2008 report from the General Accountability Office, which has been referenced several times this morning, over 600 organizations develop, market or sell offsets in the United States with a wide range of prices, transaction types and projects. One thing that remains constant among the 600 organizations is the lack of the ability to verify the validity and effectiveness of these offset plans. In fact, we are still trying to verify the validity of the carbon indulgences purchased by the House of Representatives in November of 2007.

I understand that the offsets have to be, as has been earlier pointed out, real surplus, quantifiable, verifiable and enforceable to be credible, but I frankly cannot understand why they also need to be international. How are international carbon

offsets useful when the carbon producing sources are local? In my area, the Dallas-Fort Worth area of Texas, we have some of the most significant traffic congestion in the world, and as a consequence are brushing up against nonattainment for air quality standards several days a year. We work on these issues locally in order to improve air quality for the people who live and work in the area, but we certainly don't throw a tarp over grass clippings in a Third World country to excuse the emissions that we create from sitting in traffic on Interstate Highway 35 through the center of my district. I am going to maintain a healthy skepticism of any legislation or company that advocates for an international carbon offset program.

Mr. Chairman, in just the brief time I have remaining, I would just like to add my concern to that of Mr. Shimkus. We are fixing to pass one of the largest tax increases on the middle class and lower levels of earning in this country, and I think it is only appropriate the American people be able to see what we are doing under the cover of darkness.

I yield back.

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Mr. Markey. The gentleman's time is expired. The Chair recognizes the gentleman from Texas Mr. Gonzalez.

Mr. Gonzalez. Waive opening.

Mr. Markey. The Chair recognizes the gentlelady from Wisconsin Ms. Baldwin.

Ms. Baldwin. Thank you, Mr. Chairman.

Today's hearing brings us to the core of one of the issues we will be tackling in a cap-and-trade bill. Offsets are important to a greenhouse gas reduction program, both because of the cost-containment benefits and the environmental benefits that occur even beyond those of emissions reductions. Given my State's significant industrial base, along with our wealth of forested and agricultural lands, Wisconsin has a substantial interest in a successful offset program.

Offsets have the ability to lower our compliance costs, provide investments in the resources of our State and region, and ensure that we meet greenhouse gas emissions targets. Specifically we must give serious consideration to investments and offsets projects such as those that capture methane from landfills, invest in agricultural conservation, implement energy-efficiency technologies, and protect or plant trees through various forestry projects.

With regard to the potential for increasing carbon sequestration through forestry and agricultural practices, earlier

indications suggest that by extending rotations in Wisconsin's forests and continuous no-till of cultivated cropland, Wisconsin could provide about 16 million metric tons of additional carbon sequestration with a price of carbon at \$20 per ton of CO₂. This amount would account for approximately 13 percent of Wisconsin's total emissions and could vary depending on many factors. Plus there are additional benefits that can be achieved through use of offsets: clean water, air quality improvement, watershed stabilization, biodiversity and wildlife habitat protection, and preservation of agricultural land and farming, to name just a few.

Let me conclude by saying that while an offset program is important, it can only be truly successful if emissions reductions are real, verifiable, additional, permanent and enforceable. I look forward to hearing how we can design a system that meets all of these criteria.

Thank you, Mr. Chairman. I yield back the balance of my time.

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Mr. Markey. The gentlelady's time is expired. The Chair recognizes the gentleman from Pennsylvania Mr. Pitts.

Mr. Pitts. Thank you, Mr. Chairman. I would like to thank you for convening this hearing today on such an important issue.

Like all of us, I believe we should work to decrease the amount of greenhouse gas emissions into our atmosphere. Many of us are concerned, however, about the economic impact of legislation that could be passed to curb emissions, like a cap-and-trade bill. We are also concerned about the role of offsets that may be included in a possible cap-and-trade bill.

On September 18, 2008, Mr. Orszag, the present President Obama's OMB Director, testified that, quote, decreasing emissions would also impose cost on the economy. Much of those costs will be passed along to consumers in the form of higher prices for energy and energy-intensive goods, end quote.

I do not believe that we should pass a cap-and-trade bill that will harm our already damaged economy and those least able to withstand more economic pressure, regular Americans who are struggling to make ends meet during this recession.

In regard to offsets, there have been widespread reports that organizations are paying for reductions that do not actually take place. In addition, some offsets result in a reduction in emissions that would have taken place regardless of someone paying vast sums of money for the offset to occur. Former director of

global warming for the Sierra Club, Dan Becker, has been quoted saying, quote, on the one hand, there is potential benefit of educating people through offsets. On the other hand, if people view offsets like papal indulgences that allow you to continue to pollute, then it is probably not a good idea, end quote.

Therefore, as this committee considers climate change legislation, I believe it would be prudent for us to not only consider the economic impact of climate change legislation, but also each component's effectiveness.

I look forward to hearing our witnesses today, and I thank you, and yield back.

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Mr. Markey. The gentleman's time has expired. The Chair recognizes the gentleman from Virginia Mr. Boucher.

Mr. Boucher. Thank you very much, Mr. Chairman. And I want to thank our witnesses for taking part in our conversation today.

It is possible to create a program that reduces greenhouse gas emissions substantially and at the same time is not economically disruptive, but those two goals can only simultaneously be met if there is a sufficient availability of offsets operating outside the cap. Nowhere is that reality better illustrated than in the context of utilities that consume fossil fuels.

Fifty-one percent of electricity in the United States is coal-fired, and the technology to enable coal to be combusted without emitting carbon dioxide is still under development. And even if we accelerate the funding for the development of that technology, which I will be urging that we do as part of our cap-and-trade measure, it is estimated that the technology will not be fully deployed until about 2025.

If we require large reductions in emissions in the time between the effective date of the measure and that 2025 date, the utilities that are consuming coal, about half of all utilities today, would default to the next least expensive fuel, and that fuel is natural gas, a fuel that is already in short supply in this country. And if we had half of electric utilities defaulting

to natural gas, there would be a tremendous spike to natural gas prices, and that would cause deep economic pain across the entire economy. At the present time 58 percent of American homes are heated with natural gas, and the range of industries from chemicals to agriculture and others are heavily natural-gas-dependent. True economic dislocation would occur.

The answer is to have a generous availability of offsets. And the legislation, which I joined with Chairman Dingell last fall in publishing on our committee's Web site, contains that reasonable offset availability.

I was pleased to note that the blueprint put forward by the USCAP group, and I know we will be hearing about that from our witnesses today, also contains an appropriate availability of offsets. As I recall their numbers, it is 1.5 billion tons both domestically and internationally on an annual basis. That would make sure that we can take carbon dioxide reductions in the near time, and that in doing so, we do not have national economic disruption.

Thank you, Mr. Chairman. I yield back my time.

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Mr. Markey. The gentleman's time has expired. The Chair recognizes the gentleman from Louisiana Mr. Scalise.

Mr. Scalise. Thank you, Mr. Chairman.

I look forward to hearing from our panel as we discuss the role of climate change and offsets. I think the GAO report raises some serious concerns. Other reports have raised serious concerns about questions about cost-effectiveness and integrity of the European Union's Emissions Trading Scheme, as well as international carbon offset schemes. I am sure to those who stand to profit from the trading of offsets and the lucrative fees that would go along with it, the idea of some of these emissions trading exchanges might sound very interesting to them, but I think we also have to look at the other side and the cost that goes along with it.

To many of us the term "cap and trade" is nothing more than a code word for a tax increase on energy use. And I think if you look in the President's executive budget that was submitted last week, over \$640 billion in new taxes are expected to be created from a cap-and-trade scheme. And what does this mean to our economy? What does this mean to our job market at a time when we surely don't want to be hurting our economy and sending more jobs overseas?

I think all of these issues need to be considered in the broader context of, number one, the effectiveness of studying the

European model, and I am sure we are going to be hearing a lot about that, but also the adverse effects on our economy, as well as to every consumer in this country that may think they are not going to be paying higher taxes when they realize that that \$640 billion in new taxes is going to be hitting those very middle-class people and lower-middle-class people, people at the bottom of the rung, who can least afford to pay it. So I think we need to consider all of these in the broader context as we are discussing this issue, and look forward to hearing the rest of the panel discuss those as well.

Yield back.

[The information follows:]

***** COMMITTEE INSERT *****

Mr. Markey. The gentleman's time has expired. The Chair recognizes the gentleman from North Carolina Mr. Butterfield.

Mr. Butterfield. Thank you very much, Mr. Chairman, for convening this important hearing today, and I certainly thank the six witnesses for their anticipated testimony.

Mr. Chairman, I agree with my colleagues that it is appropriate for us to begin to have this conversation and to develop a generous system of offsets that would be real, that would be verifiable, permanent, efficient and effectively monitored. My desire to support this concept stems not only from a desire to provide cost-containment measures in the bill, but also to provide an economic opportunity for districts like mine, which I refer to as an offset-rich district, in northeastern North Carolina.

Methane digestion on large livestock operations could be a credible and useful offset in not only removing a harmful gas from the air, but also using methane for electricity on the farm and eventually on the grid. There are nearly 350,000 hogs and pigs being raised in my district, and this represents a clear, clear opportunity for these farmers to become part of the green solution.

North Carolina has extensive forestry resources with nearly 60 percent of our State's 33 million acres considered to be forestland. Including foresting provisions into an offset regime

will be duly beneficial. It will have two benefits, because the potential includes not only reducing deforestation emissions, but also the potential for increased sequestration through afforestation, reforestation and forest management. And so this is an important conversation, and I thank you, Mr. Chairman for your leadership on this incredibly important issue.

I yield back.

[The information follows:]

***** COMMITTEE INSERT *****

Mr. Markey. I thank the gentleman.

The Chair recognizes the gentleman from Texas Mr. Hall.

Mr. Hall. I thank you, Mr. Chairman. And as we listen to these six folks here to give us their opinion and suggestions, I won't waste a lot of their time, because I will get right to the point on the role of offsets as a cost-control mechanism under the cap-and-trade regulatory scheme. I won't go into what it does to our economy; the energy needs, accumulation of debt, or, as the gentleman just spoke there, of new taxes. But Chairman Barton, former Chairman Barton, pretty well spoke my feelings on it. He said he had a questionable -- at best he was questionable. Dr. Burgess said he had a lack of optimism.

I will just be plain about it. As I listen to this and how offsets is going to be sold on emissions trading exchanges and all that, I say, Mr. Chairman, to you, my friend, and a guy I admire and respect and differ with, I say the same thing that a loan officer from Prudential told me one time when I asked for a loan from one of my companies: I listen to your outrageous proposals with an open mind. That gets about as plain as I can say it, and I yield back my time.

Mr. Markey. I thank the gentleman very much. My goal is for us to make that loan possible, though. Just so you know, I am going to be working on that.

[The information follows:]

***** COMMITTEE INSERT *****

Mr. Markey. And the Chair recognizes the gentleman from Washington State Mr. Inslee.

Mr. Inslee. Just two points. First, we are now starting a serious discussion of a cap-and-trade bill, and I think we will hear a lot of my friends across the aisle simultaneously talking about their desire to cut CO2 emissions and their abject refusal to embrace a cap-and-trade bill. And I just hope that during this debate, those who do express a desire to deal with this issue will come forward with ideas about how to deal with it. You can't be something with nothing. We are putting forth a cap-and-trade bill which is an honest attempt to deal with this issue, and I hope that we can welcome positive ideas from the other side of the aisle.

The second point I would hope that our panelists could answer today is a fundamental question I have about offsets. If a polluting industry in the United States buys an offset to engage in a contract an owner in a Brazilian forest not to cut down 100 acres of trees, to use the sequestration asset of those trees, how can we be assured that his neighbor or his other 100 acres just don't get cut down so we get no additional benefit? The only way I could see that this would actually be credible is if, in fact, we buy down the quota, if you will, of Brazil, where we essentially reduced the otherwise allowed CO2 emissions, or a total deforestation acreage provision wherein we, in fact, get

additional protection. I don't see any other way to do it, and I hope the panelists will address that issue. Thank you.

[The information follows:]

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Mr. Markey. The gentleman's time has expired. The Chair recognizes the gentleman from Kentucky Mr. Whitfield.

Mr. Whitfield. Mr. Chairman, I will waive opening statement.

Mr. Markey. The Chair recognizes the gentleman from Oklahoma Mr. Sullivan.

Mr. Sullivan. I waive opening statement.

Mr. Markey. The Chair does not observe any other Members seeking recognition for the purpose of making an opening statement. We will turn to our witnesses.

Our first witness this morning is Mr. John Stephenson. He is the Director of Natural Resources and Environment at the United States Government Accountability Office. He has assisted Congress immensely over the years in various GAO investigations, including his recent reports on the voluntary carbon offset market and the Kyoto Protocol's Clean Development Mechanism. Thank you for joining us.

Mr. Stephenson, whenever you are ready, please begin.

STATEMENTS OF JOHN STEPHENSON, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT, GOVERNMENT ACCOUNTABILITY OFFICE; GARY GERO, PRESIDENT, CLIMATE ACTION RESERVE; EMILY FIGDOR, FEDERAL GLOBAL WARMING PROGRAM DIRECTOR, ENVIRONMENT AMERICA; GRAEME MARTIN, MANAGER OF BUSINESS DEVELOPMENT, ENVIRONMENTAL PRODUCTS, SHELL ENERGY NORTH AMERICA; STUART EIZENSTAT, ON BEHALF OF THE FOREST CARBON DIALOGUE; AND MICHAEL WARA, Ph.D., ASSISTANT PROFESSOR, STANFORD LAW SCHOOL

STATEMENT OF JOHN STEPHENSON

Mr. Stephenson. Thank you, Mr. Chairman, and Mr. Upton and other members of the subcommittee. I am here today to talk about the potential role of carbon offsets in climate change legislation. My testimony is drawn from two of our recently issued reports: one, Lessons Learned from Voluntary Carbon Offset Markets in the U.S.; and the other, The European Union's Mandatory Market Implemented under Kyoto Protocol's Clean Development Mechanism.

Mr. Dingell and Mr. Barton have already done a good job of summarizing those two reports, but I am going to do my take on it anyway. The existing U.S. market is considered voluntary because we do not yet have national limits or a cap on greenhouse gas emissions. The CDM, on the other hand, is a program that allows

EU countries under the Kyoto Protocol to partially meet their emissions targets by investing in offset projects in developing countries like China.

Our reports identify challenges with ensuring the credibility of offsets in both markets and matters for the Congress to consider as it moves forward in developing climate change legislation.

Carbon offsets are reductions of a greenhouse gas from an activity in one place to compensate for emissions occurring elsewhere. Because the cost of creating an offset can be less than that of requiring regulated industries to make reductions themselves, carbon offset can be a useful cost-containment mechanism in a mandatory emissions-reduction program. For example, a regulated coal-burning power plant might choose to invest in projects to reduce carbon emissions off site rather than make reductions itself or trade with another entity. However, the use of offsets, whether for voluntary or compliance purposes, presents numerous challenges.

First, carbon assets are difficult to characterize and evaluate since they can involve different activities, definitions, greenhouse gases, quality assurance practices and time frames. We found that this is particularly true in the voluntary offset market in the U.S., which is not regulated, lacks transparency and provides offset purchasers with limited evidence of a project's quality and integrity.

Second, ensuring the credibility of offsets is challenging because there is no reliable way to determine whether the underlying project is additional to a business-as-usual scenario. In other words, it is difficult, if not impossible, to know whether a project might have gone forward anyway. Because all offset projects involve estimating reductions in the future relative to projections of a business-as-usual condition, all estimates and projections are inherently uncertain.

Third, offsets involve environmental and economic tradeoffs. For example, offsets could lower the cost of the future U.S. cap-and-trade program, but could also undermine its effectiveness if the offsets do not represent real reductions. Our work has raised questions about the credibility of offsets in the voluntary market and identified cases where CDM offsets lack credibility. In the case of the CDM, offsets have provided cost containment for entities regulated by the EU cap-and-trade program by enabling them to use offsets for partial compliance with the program. However, the CDM's effects on emissions are uncertain because of challenges in ensuring the credibility of offsets. In addition, the project approval processes is lengthy and resource-intensive, which significantly limits the program scale and cost-effectiveness.

Nonetheless, an international offset program like the CDM can provide incentives for developing countries to participate in global efforts to reduce emissions. In fact, developing countries

may not have signed Kyoto without the CDM. This is important because any meaningful effort to limit the harmful effects of climate change will require substantial international cooperation.

To the extent that the Congress chooses to develop a program that limits greenhouse gas emissions, allowing the use of carbon assets for compliance, it may wish to establish, one, clear rules about the types of offset projects that regulated entities can use for compliance, as well as standardized quality-assurance mechanisms for these allowable project types; two, procedures to account and compensate for the inherent uncertainty associated with offset projects such as discounting or overall limits to the use of carbon for compliance. A standardized registry for tracking the creation and ownership of offsets will also be needed; and lastly, procedures for amending the offset rules, quality-assurance mechanisms and registry based on experience and the availability of new information over time.

The fact that the EU, even with extensive quality-assurance procedures, had credibility problems with some CDM offsets illustrates the potential for offsets to undermine the integrity of a cap-and-trade system. Given these challenges, it may be useful to consider the merits of offsets relative to other cost-containment mechanisms as we go forward.

Mr. Chairman, that concludes my statement. I will be happy to answer questions at the appropriate time.

Mr. Markey. Thank you, Mr. Stephenson, very much.

[The prepared statement of Mr. Stephenson follows:]

***** INSERT 1-1 *****

Mr. Markey. Our next witness is Gary Gero. He is the president of the Climate Action Reserve. His organization is a recognized leader in the development of offset protocols and standards, and he is an expert in this field.

So we welcome you, sir. Whenever you are ready, please begin.

STATEMENT OF GARY GERO

Mr. Gero. Thank you. And good morning, Chairman Markey, honorable members of the committee. I thank you for the opportunity to be here today, and I thank you for your attention to this important topic.

My name is Gary Gero. I am the president of the California Climate Action Registry, a 501(c)(3) nonprofit organization. The California Registry was created in 2001 by the State of California to provide regulatory quality greenhouse gas accounting standards and public registration of greenhouse gas emissions data. We were established specifically for the purpose of recognizing and encouraging early voluntary actions to address the serious threat of climate change. We are today a fully independent, national environmental nonprofit organization that is guided by a board of directors comprised of leaders from government, business and the environmental community.

Since our beginning we have developed and become widely recognized for our expertise in rigorous and accurate greenhouse gas accounting. More recently we have applied this expertise to create and operate a greenhouse gas emission reduction credit or offsets registry. This offsets registry is known as the Climate Action Reserve, and to date more than 40 emission-reduction projects from 18 U.S. States have been submitted to it. Additionally, the States of California and Pennsylvania have formally recognized our standards for quantifying early voluntary actions.

The Climate Action Reserve provides several tests to ensure the environmental integrity of the offsets that we register. First, we develop and implement standardized, performance-based protocols to quantify a project's greenhouse gas emission reductions. These protocols are the accounting standards that we use to ensure that the emission reductions are real. And that they are accurate. Included in these are methods for demonstrating that a project would not have happened anyway; that is, that the project is surplus or additional. Our protocols also specify mechanisms for ensuring the permanence of sequestration offsets.

Second, we actively manage an independent third-party verification program to ensure that our standards are being met. As you well know, strong rules are meaningless without strong enforcement. As part of this we work with the American National

Standards Institute to train, accredit and assiduously oversee verifiers.

Third, we will oversee a robust offset registration, serialization and tracking system to ensure ownership and prevent double counting. Indeed. We create a unique serial number for every ton of emission reduction so that ownership can be clearly established. These are elements of our program's contractual standards which are necessary to ensure that the offsets are enforceable.

So I have described what we do, but let me take a second to say what we do not do, because I think that, too, can inform good program design.

RPTS DEAN

DCMN HOFSTAD

[10:34 p.m.]

Mr. Gero. To avoid real or even perceived conflicts of interest, we do not fund or otherwise develop emission-reduction projects, nor do we serve as an exchange for offset credits or otherwise engage in financial transactions concerning such credits. Further, we are not an advocacy organization. As an environmental nonprofit organization, our public benefit mission is to ensure that when an emission reduction is reported, there is certainty that it has truly resulted in a benefit to the environment.

Let me briefly describe the four guiding principles that are the core to our efforts and that are vital to ensuring the integrity of any offsets program. The first, clearly, is accuracy, which is to ensure that measurement estimation techniques and emission factors reflect best-available science.

The second is conservativeness. Despite best efforts, or sometimes for reasons of practicality, there are times when there is some uncertainty with regard to the quantification of emission reductions. In such cases, the guiding principle that we rely on is conservativeness so that emission reductions are not overestimated.

The third is transparency. Transparency ensures that outside observers have unhindered access to all aspects of our work so

that they may gauge for themselves its accuracy and its credibility.

And, finally, practicality. Notwithstanding our other guiding principles, the Reserve recognizes that, for a program to function effectively, it must not simply be an academic exercise. Instead, it must incorporate a commonsense approach and be practical. It is important that any offsets program only be as complex as is necessary to retain its rigor and its credibility, but no more so.

So let me conclude with this. I believe that the experience of the Climate Action Reserve has clearly demonstrated that it is possible to design and implement an effective, credible, and practical offsets program.

I thank you for the opportunity to be here today, and I am happy to answer any questions you may have.

[The prepared statement of Mr. Gero follows:]

***** INSERT 2-1 *****

Mr. Markey. Thank you, Mr. Gero, very much.

Our next witness is Ms. Emily Figdor, who is the director of the Federal Global Warming Program at Environmental America.

We welcome you, Ms. Figdor. And whenever you are ready, please begin.

STATEMENT OF EMILY FIGDOR

Ms. Figdor. Thanks so much for the opportunity to share my views regarding the role of carbon offsets in climate legislation.

My name is Emily Figdor, and I am the director of the Federal Global Warming Program at Environment America. Environment America is a federation of State-based, citizen-funded, environmental advocacy organizations with more than 750,000 members and activists in all 50 States.

Last week, President Obama issued a historic call for Congress to send him legislation that, quote, "places a market-based cap on carbon pollution and drives the production of more renewable energy in America." The central objective of such legislation must be to reduce global warming emissions fast enough to avoid dangerous impacts, such as a massive rise in sea levels that would inundate coastal areas.

To avoid what some climate scientists call "the tipping point," our view is that the United States must cut its global

warming emissions by at least 25 percent below 1990 levels by 2020 and by at least 80 percent below 1990 levels by 2050.

The number-one imperative of U.S. climate policy must be to achieve science-based cuts in pollution. Offsets, however, provide less certain reductions in emissions, thus jeopardizing our ability to achieve pollution reduction targets. This is because emission allowances and offsets are fundamentally different. An allowance represents a unit of emission. If a facility decides to emit carbon dioxide, it must hold an allowance. An offset, on the other hand, represents a unit of pollution not emitted. It is of equal value to an allowance only if it can be judged with certainty that the pollution would have been emitted but was not and that the emission reduction resulted from the incentive provided by the offset.

To illustrate the difference, consider two people trying to lose weight. One person decides to meticulously count the calories of the foods he eats, with the goal of reducing his intake each day. The second person, however, counts the calories of the foods he thinks he would have eaten but did not because he was on a diet. You can imagine which of these two will be more likely to actually shed a few pounds.

Or consider a situation in which rising natural resource prices bring an industrial facility abroad to the verge of shutdown, a step that would reduce emissions. A U.S. utility might agree to pay the factory owner if she shuts down the

facility, thus generating offsets that the utility can use to expand its operations. The key question is, would the factory have shut down anyway? If the answer is yes, no additional emission reductions have been gained. Indeed, the offset program would result in an increase in overall emissions versus business as usual.

Determining additionality requires crystal-ball gazing, and so is impossible to know with certainty. At the same time, the worthwhile goals promoted by many offset proponents -- to protect tropical forests and sequester more carbon in plants and soils in the United States -- can be achieved without jeopardizing the environmental integrity of the overall program.

Specifically, Congress could set aside a small portion of auction revenue for these two purposes. Emission reductions from these set-aside programs would be in addition to those required by capped sectors under the cap-and-trade program. As a result, problems such as leakage and additionality would not jeopardize our pollution reduction goals.

Because offsets deliver a less certain emission reduction, they should not be included in climate legislation. Nonetheless, if offsets are, in fact, considered, the levels of the caps on pollution must be stringent enough and the offsets limited enough to minimize the impact that lower-certainty emission reductions have on our ability to achieve pollution reduction targets.

Offsets should be strictly limited to no more than 5 percent

of the allowances, as proposed by Representatives Dingell and Boucher in the early years of the offset program in their draft climate bill. Unlike in their bill, however, this percentage should not increase over time unless and until offsets can be proven to deliver equivalent emission reductions to actions taken within the bounds of a cap-and-trade program.

To provide the highest-quality offsets possible, Congress should require EPA to consult an independent science advisory board in establishing and periodically reviewing domestic and international offset programs. In addition, due to the inherent problems in determining additionality, Congress should discount offset credits.

Finally, if international offsets are permitted, national-level accounting and administrative methods should be required. And there should be some conditionality on their use to enable the program to serve as a lever to encourage developing countries to substantially reduce their emissions below business as usual.

In conclusion, the central objective of U.S. climate policy must be to reduce global warming emissions fast enough to avoid dangerous impacts. Because offsets provide less-certain reductions in emissions, they would jeopardize our ability to achieve pollution reduction targets and should not be included in climate legislation.

Thank you.

[The prepared statement of Ms. Figdor follows:]

***** INSERT 2-2 *****

Mr. Markey. Thank you, Ms. Figdor, very much.

Our next witness is Mr. Graeme Martin. He is the manager of business development of environmental products for Shell Energy North America.

We welcome you, sir. Whenever you are ready, please begin.

STATEMENT OF GRAEME MARTIN

Mr. Martin. Well, good morning, Chairman Markey and members of subcommittee. Thank you for the opportunity to be here today. It is a real honor.

Mr. Markey. Could you move the microphone over just a little bit? Thank you.

Mr. Martin. Shell was one of the first integrated oil companies to acknowledge the impacts of human activity on the climate, and we believe now is the time to act. The longer we delay, the more stringent the needed measures and the more expensive the compliance. And, in particular, Shell supports cap-and-trade as the surest way to reduce CO₂.

We are members of U.S. Climate Action Partnership, and we helped write the blueprint for legislative action. Shell and USCAP believe offsets are critical to managing the cost of a cap-and-trade program, especially in its early years. In Shell's trading experience, the more offsets you have, the lower the

average cost of compliance. So, for this reason, USCAP's offset recommendations are integral to USCAP's support for the aggressive environmental targets referenced in the blueprint.

The USCAP and Shell recommend a limit of 1.5 billion tons of domestic and 1.5 billion tons of international offsets, as we have already heard. We have an initial annual limit set at 2 billion tons combined.

We call for a carbon market board to set the annual limits on offsets. This board will use that authority to avoid economic harm from excessively high allowance prices or increases in the price of natural gas due to fuel-switching.

In addition to cost containment, there are other compelling reasons to use offsets. First, offsets actually reduce emissions. The climate doesn't care where the CO₂ is reduced; reductions from anywhere in the world have the same impact. And some other cost-containment measures may not actually deliver that environmental result.

Second, offsets deliver an environmental value in addition to the CO₂ reduction, including improving habitat water quality and biodiversity at the site where the offsets are created.

Third, offsets drive the deployment of technology at its most reasonable cost. Affordable offsets help companies like ours in the early years invest in the climate technologies that they know they will need in the later years when the targets are much steeper. Shell believes that several key technologies at

commercial scale are going to be needed to address climate change, including carbon capture and sequestration and cellulosic ethanol. And we have been working hard to develop these technologies.

Fourth, offsets help prevent the so-called "dash to gas." Without offsets, companies may be forced to switch from CO₂-intensive fuels like coal to cleaner fuels like natural gas. And a move like this could sharply drive up the cost of natural gas, harming the economy, businesses, and consumers.

Fifth, and finally, international offsets are an excellent tool to encourage developing countries to reduce their own CO₂ emissions. We know it will be a long time before cap-and-trade covers all of the economy in all parts of the world, but we still need to introduce the emissions reduction into the developing world if we really want to tackle climate change. And quality offsets are a good way to encourage this.

USCAP and Shell call for quality offsets developed to strict standards. When we recognize problems with the current international offset system, and we fully support reform of the clean development mechanism. We strongly believe the offsets should be environmentally additional, permanent, measurable, verifiable, and enforceable, as we have heard. Shell is working closely with organizations like the California Climate Action Registry to craft these world-class offset protocols.

We support USCAP's call for the EPA to set a transparent process for crafting offset standards. We believe the EPA should

certify these offsets. And we would like to see the U.S. engage assertively in international climate dialogues and lead the effort to reform the international offset program to U.S. standards. We strongly prefer to see one common, internationally accepted standard for all offsets.

So, in summary, abundant quality offsets are key to achieving these stringent targets at the lowest possible cost of the economy. I thank you for your time and am happy to answer any questions.

[The prepared statement of Mr. Martin follows:]

***** INSERT 2-3 *****

Mr. Markey. Great. Thank you, Mr. Martin, very much.

Our next witness is Ambassador Stuart Eizenstat. He is a partner at the law firm of Covington & Burling and focuses on international trade and dispute resolution.

He was the lead U.S. climate negotiator during the Clinton administration and has served in several roles in the Federal Government, including Ambassador to the European Union and Deputy Secretary of the Treasury. He is here today on behalf of the Forest Carbon Dialogue.

We welcome you, Ambassador Eizenstat.

STATEMENT OF STUART EIZENSTAT

Mr. Eizenstat. Thank you, Mr. Chairman, Mr. Upton. I am here today on behalf of the Forest Carbon Dialogue, which is a unique environmental corporate coalition dedicated to provide domestic and international forest carbon provisions in any U.S. climate legislation.

We cannot solve climate change without forests.
Deforestation contributes some --

Mr. Markey. Mr. Ambassador, could you move the microphone in just a little bit closer?

Mr. Eizenstat. Deforestation contributes some 20 percent of all greenhouse emissions, more than all the transportation modes

in the world: more than cars, trucks, trains, and planes together. Deforestation accounts for the fact that Brazil and Indonesia are the fourth- and fifth-largest carbon dioxide emitters. Forests also have the potential to address cost-effectively up to half of all human-caused emissions.

The use of forest credits in climate change legislation would accomplish two goals at the same time. First, they would provide American-regulated corporations and entities a cost-effective way to meet emission targets. The greatest threat to passage of cap-and-trade legislation, as shown by the Senate debate last year, is concern about cost, particularly now in a time of economic weakness. Offsets addresses that.

The second benefit, one I saw clearly at Kyoto, is it can tangibly encourage developing countries to take actions to deal with climate change and break the China-led phalanx of united opposition to action on climate change by getting the developing world engaged in this process and creating, at the same time, a more level playing field for U.S. industry.

There are also multiple co-benefits to a robust forest provision in legislation. Biodiversity and environmental protection is one. Tropical forests are home to half of the world's species, who will be protected. They help restore degraded lands and watersheds. They reduce soil erosion and provide clean water and avert draughts and crop failures.

Second, they contribute to sustainable development. Eighty

percent of the world's rural poor in developing countries depend for their livelihood on forests. Cutting them down at the rate we are doing, which is one football field per second, means that the rural poor will be deprived of a place to live.

And that is why the third benefit is a security benefit. U.S. military experts, in a recent report, indicated that fragile societies will become even more unstable, and a new mass movement of "eco-migrants" will occur, bringing vast human and economic cost to our doorstep. Forests can help avoid that.

There have been path-breaking economic analyses recently by Sir Nicholas Stern and by the Eliasch report for the U.K. Government, by McKinsey, and by the Lawrence Berkeley Laboratory, all setting forth in detail the critical role forests and land use can play in cost-effective ways to deal with climate change.

They also document that the incentives to cut forests are so great, they are so tremendous -- cut them, plant soybeans, and export them -- that you have to create robust incentives to avoid that incentive to cut. Once they are gone, they are gone forever. This is not like Weyerhaeuser replacing its forests on a regular basis with seedlings.

The costs are anywhere from \$5 billion to 10 billion, according to the Stern report, to the 2008 Eliasch report, which says \$20 billion to \$30 billion. You cannot create those kinds of incentives by foreign assistance alone. You need market mechanisms to mobilize the power and discipline of markets to

offset the tremendous pressures to cut.

Now, there is a new world out there. Developing countries who were not, at Kyoto, willing to play are willing to do so. For example, the Common Market for Eastern and Southern Africa, COMESA, with some 17 countries, the Coalition for Rain Forest Nations -- all are saying their contribution to dealing with climate change will be to avoid deforestation if they are provided incentives to doing so. And they must have, because the incentives to cut are absolutely so enormous. This is not a way of avoiding action. And, indeed, it will encourage more aggressive action.

Brazil announced just a few months ago, Mr. Chairman and members of the committee, its first-ever target to cut the massive rate of deforestation of the Amazon by 70 percent over the next decade. The reason why, if you look at the top five countries in emissions, Indonesia and Brazil are in the top five isn't because of their industrialization, it is not because of their cars, it is because they are costing their forests down.

Just this week, this very week, Indonesia applied for a World Bank program supporting developing-nation efforts to fight deforestation and earn money through the sale of tradable forest credits.

Now, I would like to deal very quickly with the questions that have just been asked. They are obvious question. President Reagan said, when he was dealing with the Soviets on arms control,

"Trust but verify." There is verification here, and let me go into it very quickly.

Credits generated from national and subnational reductions in deforestation can be, and are being as we speak, verified on the basis of objective, transparent, open-access remote sensing data. What that means is satellite telemetry has improved so substantially, Google can look into neighborhoods and into forests. A partnership announced this very week between Cisco and NASA and Brazil's INEP are making available free on the Internet a national baseline that can be created for forests with on-the-ground monitoring and scientific evaluation to provide certainty about the level and change of the forest carbon content in our forests.

The Eliasch report, just a few months ago, for the U.K. stated that monitoring emissions from forests based on satellite telemetry is more reliable than monitoring emissions from any other sector.

In addition, national forest baselines and national accounting frameworks can be developed that are critical to make these forests carbon markets integral. Any reductions below that national baseline are real reductions, not false reductions.

There are also a variety of insurance mechanisms, Mr. Chairman and members of the committee, that can be put in place, buffer funds and buffer zones in which a percentage of carbon credits and/or forests themselves can be held in reserve in case

there is any change in policy or forest fires.

In addition, actual insurance products are being developed now by the insurance industry and the World Bank. Liability clauses can provide additional insurance. And leakage can be dealt with through the market price of the credit, discounted if the credit is less valuable. Offset credits would be available only if an entire country's rate of emissions from a protected sector falls below a particular established baseline.

Mr. Markey. If you could summarize, Mr. Eizenstat.

Mr. Eizenstat. Therefore, there are ways to deal with these questions, but there is no time for delay. If we dilly-dally on this, these forests will be gone by the time we implement this, and we will not be able to deal with 20 percent of the problem that is existing now in CO2 incentives. It is urgent to act now. We can solve this problem. This is a cost-effective way, both for U.S. companies and to incentivize developing countries that haven't been willing to play before.

[The prepared statement of Mr. Eizenstat follows:]

***** INSERT 2-4 *****

Mr. Markey. Thank you, Ambassador Eizenstat, very much.

Our final witness is Dr. Michael Wara, who is the assistant professor at Stanford Law School. His research focuses on the emerging global carbon market.

We welcome you, sir. Whenever you are ready, please begin.

STATEMENT OF MICHAEL WARA

Mr. Wara. Mr. Chairman and members of the subcommittee, I am honored to appear before you and grateful to have the opportunity to talk about my perspective on the performance to date and the potential role of international offset programs in U.S. climate policy.

Mr. Markey. If you could speak up just a little bit.

Mr. Wara. Sure.

At the outset, I want to emphasize that, while my remarks and my written testimony are relatively critical of the clean development mechanisms performance to date, I remain a proponent of emissions trading in general, because emissions trading creates appropriate incentives to internalize the costs of climate change for firms and because it has at least the potential to substantially reduce the societal costs of addressing climate change.

We cannot afford to neglect the climate change problem any

longer, but neither can we afford to ignore the present and future costs of addressing the problem.

I am not a proponent of the use of offsets for cost-control purposes within such emissions trading systems. However, given that offsets are likely to be used for cost control, there is much that can be learned from the experience to date in the international system to both increase the environmental credibility of international offsets within a U.S. system and to increase the administrative efficiency and transparency and perceived fairness of a U.S. program.

All offset systems face a tradeoff between the quality of the environmental auditing processes used to verify that real reductions occurred and the transaction costs and risks that offset project developers face. This tradeoff and tension and how it is resolved essentially determines the number of offsets that are brought to market and the potential ability of the system to create cost-control for the emissions trading regime at large.

Assessing whether or not a carbon offset represents a real reduction below what otherwise would have occurred or is essentially in "anyway credit" is an incredibly difficult regulatory problem and practice. And I would argue that the CDM has not had a very high level of success in resolving this thorny issue.

I think there are two major reasons for this. First is a poor administrative legal system that is not terribly transparent

and provides cover for both changes in policy and for politicized decision-making. The second is the incredibly broad scope of the CDM. In particular, the fact that it includes offset project types where additionality assessment is intrinsically difficult to evaluate and where, as a consequence, project proponents can easily misrepresent financial, technological, and regulatory barriers to a project in order to create the impression that additionality exists when, in fact, it does not.

So what can the U.S. do? I think the U.S. can do a lot to address these issues in a future program. In particular, because, as EPA and EIA have demonstrated in their modeling results, in order to create effective cost-control, the U.S. is going to likely be compelled to purchase large numbers of international offsets and will become, likely, the largest buyer of international offsets globally. We have the opportunity to exert significant influence on the design of the international program and should do so.

And we should do it in three important ways. The first is to push for administrative legal reforms of the clean development mechanism or whatever follows it. In particular, we need to professionalize the offset regulator. Right now the regulators are part-time, volunteer political appointees. We need to remove conflicts of interest, which currently are faced by the third-party verifier, essentially the auditors and fact-checkers of the system. These conflicts of interest are pervasive and lead

to flawed analyses. Third, we need to force regulators to justify their decision-making and to explain changes from past precedent, even if they aren't bound by that past precedent.

A second major area of reform that I would argue the U.S. should pursue is to limit U.S. purchase of offsets to those sectors where evaluation of project-level additionality is relatively straightforward. We should stay away, in particular, from sectors where evaluation of whether an emission reduction would have occurred otherwise is a very difficult question to determine.

Those sectors can be addressed but not at the project level. There is an important role for the U.S. to pursue in developing sectoral approaches to those sectors, especially the energy sector and also, I would argue, the forest sector. In the energy sector, it is because additionality is a difficult problem to assess. And in the forest sector, the concern is a leakage as much as additionality, the idea that Member Inslee pointed to, that how do we know that forests preserved here doesn't lead to forests cut down somewhere else. The appropriate answer there are national baselines.

Finally, the U.S. must make clear that offsets are a temporary solution to developing-country greenhouse gas emissions. We need to provide both positive and negative incentives for major developing countries to accept caps in the medium term. I argue that these incentives should include a time frame for phaseout of

U.S. offset purchases and, as a carrot to induce a cap to be accepted, guarantees a full-market access to U.S. emissions trading markets for countries who do accept caps.

Mr. Chairman, that concludes my statement. I will be happy to answer questions at the appropriate time.

[The prepared statement of Mr. Wara follows:]

***** INSERT 2-5 *****

Mr. Markey. Thank you, Mr. Wara, very much.

We will now turn to questions from the subcommittee members, and the Chair will recognize himself for a first round.

I would like to ask, first, a yes-and-no question to all six of you, and that is on the merit of establishing an independence science advisory committee to help guide EPA's development, implementation, and updating of an offset program. Would you support the inclusion of such a mechanism inside a Federal climate piece of legislation put on the President's desk, an independence science advisory committee to guide EPA's deliberations?

Mr. Stephenson?

Mr. Stephenson. That is not really a yes-or-no question, but "yes" if it is part of an overall verification scheme for offset programs.

Mr. Markey. Okay, great.

Mr. Gero?

Mr. Gero. With the caveat that we don't take advocacy positions, I think that any stakeholder group, including scientists, is important to ensure the credibility of offsets.

Mr. Markey. Thank you.

Ms. Figdor?

Ms. Figdor. Mr. Chairman, by all means, yes. And I would add that this body, an independent advisory board, should be the ones who are determining what types of projects, if any offsets

are allowed, what types of offset projects would be allowed.

Mr. Markey. Thank you.

Mr. Martin?

Mr. Martin. Yes. And I would encourage that committee to engage at the international level, as well.

Mr. Markey. Great, thank you.

Mr. Eizenstat?

Mr. Eizenstat. Yes.

Mr. Markey. Yes.

Mr. Wara?

Mr. Wara. I agree. I think it is essential.

Mr. Markey. Okay. Next I would like to focus on the potential role of international offsets in U.S. climate legislation. We don't want international offsets to become some kind of a welfare system. To get the kind of global emission reductions we need, we have to encourage major developing countries to take broad action on climate change.

Several of you have testified about the potential to use access to U.S. carbon market as a lever to encourage such action. You have mentioned the idea of moving to sectoral instead of project-based offsets, and you have also talked about requiring developing countries to take on a progressively greater domestic commitment as a condition of being able to sell offsets into the U.S. market. I would like to ask you to expand upon your views on that subject.

We will begin with you, Dr. Wara; then we will come back through you, Ambassador.

Mr. Wara. Well, let's see. International offsets have been, historically, an important part of encouraging developing-country engagement in international frameworks to address climate change. There is no question about that.

But, in the long run, offsets only engage at the margin. They are not likely to lead to the truly substantial reductions and, really, alteration in development path that we need to accomplish in developing countries in order to fully address this issue and to make U.S. efforts worthwhile.

In that context, and especially in sectors, I would argue, sectors where regulation plays an important role -- and what I mean by that is, in particular, the energy sector in developing countries -- I think we need to really focus on talking to the regulator to address policies that discourage greenhouse gas emissions, rather than simply focusing at the project level, at the power plant level. Because, in many respects, the power plants do what the regulators tell them to.

Mr. Markey. Ambassador Eizenstat?

Mr. Eizenstat. International credits are absolutely essential. They are essential, number one, to incentivize developing countries to finally participate in the process when they will not initially take economy-wide cap-and-trade limits of their own.

Number two, Mr. Upton, this is not, sir, a transfer of U.S. taxpayer dollars to developing countries. This is a private-sector decision by a private U.S. company that may wish to reduce its cost of compliance by purchasing an international credit. It is not the transfer of a U.S. tax-based dollar.

Number three, there have been discussions about the EU ETS -- I was Ambassador to the EU -- and the CDM. The CDM was something we reluctantly agreed to because it was the only way at the time to get China, India, and the developing countries to agree at all. It is a bureaucratic nightmare. It is nothing like the kind of market-based system we are talking about now internationally. It should not be used as a model. The Europeans and the ETS don't believe in offsets; they don't believe in reducing the cost on industry. That is their problem. We should care about reducing the cost on industry, or we won't get a bill.

So international offsets incentivize developing countries, they provide a market mechanism, and they reduce the cost for U.S. companies to comply, and they are verifiable.

Mr. Markey. My time has expired. The Chair recognizes the gentleman from Michigan, Mr. Upton.

Mr. Upton. Thank you, Mr. Chairman.

I have a whole series of questions, and I want to focus a little bit on what the EU does. They, as I understand it, can do offsets both within the EU as well as internationally, is that right? Collect international offsets as well as get offsets from

within the EU itself?

Mr. Eizenstat. They can through the CDM mechanism, but, as I said, the CDM mechanism is an inherently flawed mechanism.

Mr. Stephenson. Well, the offsets are only for developing countries.

Mr. Upton. Right. And the offsets outside of the EU are only for developing countries.

Mr. Eizenstat. They can't do it within the EU.

Mr. Upton. They cannot do offsets within the EU?

Mr. Stephenson. Correct.

Mr. Eizenstat. They can have internal trading, emissions trading within the EU, within the 27, but they can only do offsets outside.

Mr. Upton. What lesson might we learn from the example that we used, that I referenced in my opening statement, as it related to the \$90,000, in essence, that was sent to North Dakota for no-till for an offset from the U.S. capital funds here? In terms of reliability, would they have done that otherwise? I mean, that is an essential ingredient that has to be part of any definition, in fact, that we would make sure that it was going to be done and perhaps outside of what would have been done otherwise.

Mr. Eizenstat. The additionality, Congressman Upton, in terms of the forestry sector, is absolutely clear. And the reason is this: The incentives to cut forests in developing countries are so enormous that the notion that somehow they would stop doing

it absent these incentives just doesn't have any credibility at all.

They are cutting them down, as I indicated, at the rate of one football field a second, because there is such tremendous incentives to cut and plant and export. So we are not dealing, at least in the forestry sector, with an additionality problem.

Mr. Upton. Now, China was in Dr. Wara's testimony, got nearly 5 billion euros for emission reductions. China, at the same time, as you know, particularly as we look at deforestation in Africa, is part of the clear-cutting along the eastern Mozambique, all those countries.

Here, China is a beneficiary of this and, at the same time, they are a major force in deforesting the world's forests as it relates to carbon.

Mr. Eizenstat. The reason is that the CDM is a project-by-project concept which does not provide real incentives for avoided deforestation. You need a full market-based mechanism which provides billions of dollars through the private market to provide those incentives. The notion that an individual project here and there in China or in Indonesia is going to have any impact simply doesn't do the job.

Mr. Upton. Dr. Wara, in your testimony, you indicated that you thought that the offsets that paid China nearly 5 billion euros could have been done for less than 100 million euros. Get into that a little bit.

Mr. Wara. Yes, sure. So the issue there has to do with what are known as the industrial gas projects in the CDM, which are projects that capture process emissions from industrial facilities that emit gases that are many times more harmful, thousands times more harmful than carbon dioxide.

And the fact of the matter is that those emissions have been capture voluntarily by some manufacturers in the U.S. -- DuPont, for one -- for many years now. And the factories in China that were emitting these emissions -- because they had no incentive to capture them. It does cost money. And DuPont, I think, does this for brand value in the U.S., because they care about their environmental and sustainability portfolio. But in China there was no incentive to capture the emissions.

The cost of capture is incredibly low, and yet the market price of the credits is so high that, effectively, these factories make now more money from capturing emissions than they do from manufacturing the products that they were created to produce.

Mr. Boucher. [Presiding.] The gentlelady from California, Ms. Capps, is recognized for 7 minutes.

Mrs. Capps. Thank you, Mr. Chairman. And thank you for acknowledging that I have a couple extra minutes. I have three questions to ask three different people, so we will have to keep the answers, I suppose, a little short.

I will start with you, Ms. Figdor. We have discussed today the various merits and drawbacks of including offsets in climate

change legislation, a complex topic. And if we include offsets in climate change legislation, we have to make sure we do it right. I have gotten that message from all of you, I believe.

As we explore the topic further, I am concerned about proposals that have emerged to use our oceans as places to sequester carbon. Ms. Figdor, what might be the consequences of using the ocean for carbon sequestration? And do you think these techniques, such as iron fertilization, should be considered as potential offsets in climate legislation?

Ms. Figdor. Thank you.

I absolutely do not believe that ocean fertilization should be considered as a potential project type able to receive offsets under a cap-and-trade bill. Ocean fertilization is not a proven method of sequestering CO₂. According to the Intergovernmental Panel on Climate Change, they call the technology, quote, "largely speculative and unproven and with the risk of unknown side effects."

So, in fact, creating an offsets market could have a very perverse incentive of, first of all, not actually resulting in real, verifiable cuts in emissions or reductions in pulling carbon out of the atmosphere. And, in addition, it could have very serious repercussions that we are currently not aware of. So this is one of the worst ideas, in terms of types of offset projects.

Mrs. Capps. Thank you. I wanted to get that on the record.

Ambassador Eizenstat, I have visited the Brazilian Amazon,

and I have seen firsthand, myself, the destruction wrought by deforestation. And I have also noted the wide variety of groups that have been making efforts to protect these forests and their biodiversity, including through the extensive development aid.

You have been very strong in your statement of need for doing these kinds of things under a market framework. You say the incentives are completely realigned for developing countries.

What I would like to ask you, but you can expand on that for a minute if you would like to, but I am very concerned, the timing being what it is, about the period before a cap-and-trade program could be up and running. Are there steps we should take immediately to assist developing countries in controlling deforestation while the other programs are under way?

Mr. Eizenstat. Well, time is really running against us, as you indicate. Brazil just made this announcement a few weeks ago about taking a first-ever cut in their massive rate of deforestation. I mean, what we can try to do is, through diplomatic means, ask them, in effect, to stop and implement already the commitment they have already made, in return for which there would be, in effect, an early-action credit, something that could be credited against their action at a later point in time.

So that we want to do that, frankly, with companies as well. I am on the board of the Chicago Climate Exchange, and they have a verifiable system. If you have early-action credits for companies, that should be a part of any legislation, so that

companies are incentivized before the legislation passes. It may be a year or two before --

Mrs. Capps. Right.

Mr. Eizenstat. -- and, even then, there will be an implementation phase and then an implementation phase.

So I think providing these kind of early-action credits for countries like Brazil or for companies would be an integral way to try to encourage them to act now and not wait until this carbon market gets established several years from now.

Mrs. Capps. Thank you. I appreciate that very much. Thank you, Ambassador.

Now I will finish my question time with you, Mr. Gero. Last winter -- and I am a California Representative -- the California Climate Action Registry verified emission reductions from the Garcia River Forest Project in California. This was a joint project of The Conservation Fund and The Nature Conservancy and PG&E. PG&E announced the purchase of 200,000 tons over 5 years for its ClimateSmart program.

There has been a lot of debate over the success of voluntary carbon markets. The Garcia River Project is an example of a successful, I hope you agree, voluntary carbon market. Would you tell us or share with us what made this program work where others have failed? And then follow it up with what lessons can be learned and applied at the Federal level by such voluntary efforts.

And if there is time, I will ask other people to join in, as well.

Mr. Gero. Thank you for that question. And the Garcia River Project is, I think, a prime example of the kind of activities that the carbon market -- the voluntary and ultimately a regulatory carbon market could incentivize. Here, the incentive provided by the offset allowed The Nature Conservancy and The Conservation Fund to buy land that would otherwise have been developed and put it under a sustainable management plan.

With our protocols, we were able to quantify what the distinction was, or the delta was, between standard practice, business as usual, what would have occurred on that land and, in fact, the management plan that The Conservation Fund implemented. Based on those standards -- and those standards are performance-based -- we were able to generate credits as a result of the verification of that activity.

Our standards are written by stakeholder groups that include scientists, industry, academics and others. And I think that that is a model that can be used in the Federal system, as well, that you need to have all of the stakeholders around the table deciding on what are good, credible standards.

I think the other thing that the Garcia River Project points out is that openness and transparency is important. Absolutely every step of the way with that project, stakeholders were engaged, people were able to see what was going on, what the

management plan was, what the rules were, what the verification activities were. And, ultimately, when that project was verified, those credits were issued on a serialized basis so that when PG&E and others purchased them, it is clear who owns those credits. And I think that all goes to creating a credible system.

Mrs. Capps. And so you would suggest, by this, that projects like the Garcia River Forest could serve as examples and models, that we don't have to start from scratch, we can look to the voluntary sector or the private sector as we seek to develop pathways to Federal regulation.

Mr. Gero. Absolutely. I think that a lot of good existing infrastructure has been created in California through the California Climate Action Registry. Our protocols in our system I believe are world-class, and that infrastructure and those systems can and should inform a Federal system.

Mrs. Capps. Thank you very much, Mr. Chairman.

Mr. Markey. [Presiding.] The gentlelady's time has expired. The Chair recognizes the gentleman from Texas, Mr. Barton.

Mr. Barton. Thank you, Mr. Chairman.

I am in, obviously, a dilemma here. I don't believe we have a need for a cap-and-trade program, but I will admit that if we are going to have a cap-and-trade program and you could figure out a way to make an offset program work, it would be a good thing.

So I could go either way on this. I could try to define a program that is really tough but, if you implemented it correctly,

it would work. Or I could try to implement a program that is so lax that it, on paper, works but it doesn't cost anything, and makes it easier to comply with.

So you have put me in a real box here, Mr. Chairman.

I do want to compliment Mr. Stephenson on his educational choice. I, too, went to Purdue and got a master of science degree in industrial administration. And you have, I think, an industrial management degree or industrial engineering degree. So I appreciate that.

Mr. Stephenson, is it fair to say that the studies that the GAO has conducted so far on these offset programs, if I had to just put it in a one-sentence conclusion, the existing programs just don't work and are almost impossible to make work?

Mr. Stephenson. That has been the case with the CDM. It is a pilot program. They are addressing problems and trying to get it right the next time.

But the problems of trying to determine what someone is going to do in the future is different than it is doing today is just an insurmountable barrier, quite frankly. And the bureaucracy to verify that, in fact, that is happening would be pretty large.

Mr. Barton. Ambassador Eizenstat, first of all, thank you for testifying. It is really good to have somebody with your expertise and credibility before the panel.

As I understand your testimony -- again, I try to simply things so that, if I can understand it, hopefully other people can

too, because I am a pretty good case since I am probably below average in ability to understand these things. If we keep --

Mr. Markey. Can I just -- you wouldn't have gotten into this program at Purdue if that was the case.

Mr. Stephenson. That is what I was going to say.

Mr. Markey. But the problem is, he is very humble but he is proud of his humility.

Mr. Barton. They may have had a Texas set-aside, you know. You never know.

If you prevent a forest from being cut down, you get the benefit of keeping the sink, which sequesters CO₂, plus the benefit of not the deforestation releasing greenhouse gases. Is that correct? You get a double benefit?

Mr. Eizenstat. You get a double benefit. It absorbs carbon, and, if you cut it, it releases carbon.

Mr. Barton. Now, I am told that the whole issue of deforestation projects is extremely complicated to verify. So my question to you would be: Under international law, would it be possible for multinational corporations, consortiums, or sovereign nations to purchase forests to prevent the deforestation of that forest and also keep the carbon sink in place? Would that be possible?

Mr. Eizenstat. First of all, in terms of your own humility, I have had the privilege of testifying before you many times. You are not one the cases of Lake Wobegon, where all the children are

above average. I can assure you of that.

The GAO study, first of all, dealt only with voluntary markets and with a highly flawed CDM process. With respect to the international markets that you are talking about, if you have a combination of highly sophisticated satellite telemetry, plus on-the-ground monitoring, you have a high degree of verification that countries will not be cheating.

And, if they do, you set up a mechanism in which you hold back, say, 20 or 25 percent of the credits, you bank them in effect, or you hold back the economic benefits that would occur, so that if there is a change in policy, if there is an effort to cutback a forest in another way, you can see it from above, you can monitor it from below, and you draw down that credit against them if they attempt to do so.

Now, in many cases, the people who will manage these forests will be private companies and private-sector entities who will go to a Brazil and say, "Look, we will manage this for you for a fee," and it will work that way. But, again --

Mr. Barton. I have one more question to ask, and I know my time is about up.

I want to ask Mr. Gero, your job in California is to try to verify these offset programs are real, is that correct? I mean, your organizations.

Mr. Gero. That is correct.

Mr. Barton. You are doing the best you can to really try to

make sure it works.

I want to ask you a specific question. If I move to California and I purchase an existing coal-fired power plant and replaced it with an equivalent megawatt output nuclear power plant, would that qualify as an offset program?

Mr. Gero. Under our protocols, no, we don't have a protocol specifically for that activity. Our program has developed, set up protocols for specific activities. These are programmatic protocols. We don't have one for fuel-shifting.

Mr. Barton. Okay.

Thank you, Mr. Chairman.

Mr. Markey. The gentleman's time has expired. The Chair recognizes the gentleman from Utah, Mr. Matheson.

Mr. Matheson. Thank you, Mr. Chairman.

The EPA estimates that the forestry and agricultural sectors can offset as much as 12 percent of this country's total annual emissions. So this sounds like an opportunity to reduce emissions more cheaply if these are real offsets. But I am concerned that an offset market could end up being just another subsidy program for certain parts of our economy, like the farm bill.

There are certain interests in this country that are going to view this and look to take advantage of it. And I think it is really important, if we are going to design some type of offset system, that we make sure it is structured in a way that it does not just become another subsidy program.

So everyone here has said they need to be measurable, verifiable, enforceable. That seems to make sense, but I just think we need to put that in the context of how a lot of people will look to game this system if it isn't set up right.

It also seems clear from the testimony that designing this type of program is going to require some pretty complex and serious scientific and technical questions about how to measure changes in emissions. If we don't have a verifiable system in place, we are going to have a situation where a company can sell low-priced offsets that don't really have any integrity. And, in the competitive marketplace, because they are so low-priced, the other company that is trying to do the right thing and will have a higher price is going to be left out of luck.

So those are, sort of, general concerns I have, in terms of how you are going to structure some type of offset program.

I want to ask the panel -- it has been discussed, the notion of creating a board of scientists to provide input on design and review of offset projects just to make sure we hold everyone to the right standards. But I am interested if people have other comments about what model we should have in mind for this board, why it should be housed at the EPA and not at other Federal agencies. And if someone wants to respond to that line of questioning?

Ms. Figdor. I would be happy to at least start off.

The EPA currently, for setting national ambient air quality

standards, seeks the advice of FACA Chartered Science Advisory Board, an independent board that, over the years, has proved very successful in providing EPA the latest science and technical information needed to set our air quality standards. I believe that model has worked very well and could be a model for use in an offsets program, if such a program is formed.

And then it should, first and foremost, be housed at EPA because the goal of this program is to reduce global warming emissions. It is an environmental goal, and the environmental agency should be in the lead in actually -- certainly consulting with other agencies as well, but should be the lead in establishing and monitoring the system.

Mr. Stephenson. I would just double that. EPA is responsible for the Clean Air Act. It already has a Clean Air Advisory Committee that does things like this, so it makes sense that that would be the place to start.

Mr. Matheson. Okay. It seems to me -- oh, go ahead.

Mr. Martin. If I could, so I agree that it needs to be with the EPA. But to the extent -- you are right, some of these issues are very technical, and it requires specific knowledge in very diverse areas, from forestry to agricultural methane, et cetera. So, to the extent that you can engage with the private sector to get all of that expertise, I think is a win for both sides.

Mr. Stephenson. The advisory boards are made up of many private-sector participants and academic participants, as well.

Mr. Matheson. Does that model that we have done, in terms of the Clean Air Advisory Committee, is it set up in a way that I think this should be set up, where, in addition to taking scientific opinions, we also ought to have on-the-ground experience and actually be out in the field measuring to make sure this is working, is that type of model going to accomplish those goals I just mentioned, of that on-the-ground focus as well?

Mr. Gero. I can take a shot at that one.

I think that you need to both -- or, actually, all of those activities. So, one, you need strong standards, as you have said, that are written by a group of stakeholders to bring them credibility.

But then those standards, when they are implemented, do need to be verified on the ground in each project. And that is where you go out and you measure; you look at metering equipment. If it is a forest, you actually do plot samples and measure trees. You make sure that the project is, in fact, performing in accordance with the standards, and only then do you issue any credits. They are always on an ex-poste basis; that is, activity reductions that have actually occurred in the previous year, not on a future basis, so you know for certain that those are real emission reductions.

Mr. Matheson. Okay. So we set the standards, and then we go on around to verify it. And then my next question is, once we have set the standards and we are verifying what is going on, then

we learn from experience, how can that board then be structured so it is going to maybe add to the list of acceptable offsets or remove items from the list that don't work? Is there a way to structure the board to make sure it has that type of flexibility?

Mr. Gero. I think that is absolutely vital. In fact, that is part of the program that we have developed. None of our standards or protocols are static documents. They are all dynamic documents that learn from experience and from the state of science as science progresses. So you do need to regularly review and update the protocols themselves. I think that, without that, you have a program that is stuck in the mud, essentially.

Mr. Stephenson. Let me just say that the board is sort of a test of reasonableness, but it is not the implementer. You still are going to need an army of estimators and verifiers and monitors to make sure that any offsets would remain viable and in place for many years.

Mr. Gero. I think the last point on that is that additionality itself changes over time. So something that is additional today, that is surplus today, when you are looking at standards 2 years from now or 3 years from now when you do an assessment, if that activity has become commonplace, that is no longer additional. And you are right, there is a process for removing that from the list.

Mr. Matheson. How do we make sure under this structure, on a going-forward basis, how do you make sure you prevent the

marketing of questionable offsets in the market, as we go on over time? I mean, there are going to be vendors all over the place, saying, "Have I got a deal for you." So how do we ensure that we don't -- how do we screen out those questionable offsets?

Mr. Gero. The model that we think about -- and we use this analogy a lot -- is either an organic seal of approval, so there is some Federal standard that says, "Here is an offset that has an organic seal of approval," or a UL listing, "This is a certified offset credit that has met some standards set forth by the U.S. Government." Any other credits that are sold out there are sold without that seal, and it is buyer beware.

Mr. Matheson. Thanks, Mr. Chairman.

Mr. Markey. The gentleman's time has expired. The Chair recognizes the chairman from Illinois, Mr. Shimkus.

Mr. Shimkus. Thank you, Mr. Chairman.

Last year we had a hearing called "The Cost of Inaction," and I asked the panel, is there a cost of increased energy in a climate change bill? And I would ask you for a yes or no answer: Will this increase energy cost?

Dr. Wara, why don't you go first, and just go down the panel.

Mr. Wara. I think the honest answer is yes, it is likely.

Mr. Shimkus. Thank you.

Ambassador?

Mr. Eizenstat. Yes, but very --

Mr. Shimkus. Thank you.

Mr. Eizenstat. Excuse me?

Mr. Shimkus. Thank you.

Mr. Martin? Mr. Martin?

Mr. Martin. With all due respect, it is not a yes-or-no question.

Mr. Shimkus. But quickly.

Mr. Martin. Yes, the offsets are there to contain the costs.

Mr. Shimkus. Thank you. Because we are putting a price to carbon is what we are doing. And if 50 percent of electricity today is carbon, you are going to add more cost. So, I mean, I think the answer is pretty clear.

Ms. Figdor?

Ms. Figdor. It absolutely depends on how you structure the program. If you invest heavily in energy efficiency, you can actually --

Mr. Shimkus. Well, just to the basic question, will energy costs go up?

Ms. Figdor. It depends how you structure the program.

Mr. Shimkus. So you can't give us a yes or no?

Ms. Figdor. It really depends on the --

Mr. Shimkus. Okay.

Mr. Gero?

Mr. Gero. It is not my area of expertise. I really can't comment.

Mr. Shimkus. Okay. Has energy cost gone up in -- you know,

California, being one the highest energy cost States in the Nation, is energy costs up in California?

Mr. Gero. We don't have a cap-and-trade program in place today, so --

Mr. Shimkus. No, I was just -- Mr. Stephenson?

Mr. Stephenson. It is impossible to give you a yes or no, but --

Mr. Shimkus. And you shouldn't really, as GAO.

Let me refer, Mr. Chairman, if I can add to the record an editorial from the Detroit News from yesterday, "Cap-and-Trade Plan Will Sink Michigan."

"President Obama's proposed cap-and-trade system on greenhouse gas emissions is a giant economic dagger aimed at the Nation's heartland, particularly Michigan. It is a multi-billion-dollar tax hike on everything that Michigan does, including making things, driving cars, and burning coal."

So if I could submit that for the record, I would like to do that.

Mr. Markey. It will be included in the record, without objection.

[The information follows:]

***** COMMITTEE INSERT *****

Mr. Shimkus. If we are going to monetize the cost of carbon, and we have all these problems with the CDM and these voluntary systems, why not a carbon tax? Mr. Martin?

Mr. Martin. I will take a stab at that one.

So the difference between a carbon tax and a cap-and-trade program is the cap-and-trade program gives you environmental certainty. It tells you what your emissions are going to be over time. With a carbon tax, you have certainty over the price, but you don't know what results --

Mr. Shimkus. So you don't trust the government that is collecting the tax to use the money to mitigate the climate issues. I mean, that is really the debate.

Mr. Martin. It is not so much that. You just don't know how much effect that price will have.

Mr. Shimkus. Well, no, I think it is. Let's propose this: We have a presidential budget that has \$646 billion in it for, in essence, this cap-and-trade program. Would it be intellectually dishonest if not every single dollar of that tax would go to mitigate the effects of climate?

Mr. Wara?

We have great experience in this committee about us passing on taxes and not using the money for what its intended purpose is; i.e., the Nuclear Waste Fund is a perfect example. If we are in a position of raising taxes on the American people, using that to

help mitigate the carbon emissions in the atmosphere, and not using that money to do that, would you not say that that is being dishonest to the citizens of this country?

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Mr. Wara. Well, I think the important thing to recognize is that a carbon tax, the point of a carbon tax is to sometimes raise the cost of emitting greenhouse gases, and that is accomplishing its objective. What you do with the money, whether you rebate it to consumers or to citizens or use it on other initiatives is a question of how you want to distribute the cost of the program across society. The same thing is true of a cap and trade, however. Depending on how you choose to distribute allowances, you can significantly impact the distributive effects of a climate policy program to make it actually progressive rather than regressive.

Mr. Shimkus. Anybody else?

Mr. Eizenstat. Yes, Congressman.

My view is that under a cap-and-trade program, with the revenues that are mentioned in the President's budget, that the overwhelming majority of that should be rebated back to industry and to consumers so that you offset the additional --

Mr. Shimkus. And I would agree. I would go further. I would say not the overwhelming, I would say all. I would say all. And hopefully some of that overwhelming will address the cost per individual.

We have this great debate -- and I will close with this Mr. Chairman, I see my time is short -- 95 percent of Americans got a

tax cut. Whoo-hoo, \$400 a year. Cap-and-trade evaluation costs \$700 a year. So maybe that additional \$300 will go to mitigate the increased cost to the individual. That is not a break even based upon this tax relief. But I would pose a question that if the revenue is not to mitigate climate, then we are just going down another failed experience of the nuclear waste fund.

I yield back.

Mr. Markey. The gentleman's time has expired.

The Chair recognizes the gentleman from Georgia, Mr. Barrow.

Mr. Barrow. Thank you, Mr. Chairman.

Ambassador, I have to say, you don't know this, but you are sort of a hero of mine. I have been watching you for a long time from something of a distance. The first time we met was the last time we met. It was at the Democratic National Convention in New York in 1976 when you were transitioning the incoming administration of then President-elect or soon to be President-elect Jimmy Carter.

You have got a great client at this hearing, and I know they got a great lawyer.

I want to ask you to kind of trade places with me and try to represent my client in this offset debate a little bit and try and help me understand what is in it for the folks in Georgia. Here is the impression I get from reading the testimony, from hearing the statements. And my understanding so far, and this is a case that is most powerfully made by you, it seems to me and the way I

would state it is, not getting developing countries to go down the road, to go down the trail that our forefathers blazed when they cleared this continent, gives us a whole lot more bang for our offset buck, does a whole lot more good, easiest to do and -- you know, easiest to monitor, easiest to verify, easiest to measure, easiest to avoid leakage. All these things seem to point in the direction of your client, the goal, the interest that you serve playing a very large role in this.

By contrast, I represent a lot of folks in a part of the country where things like RPS are going to result in a whole lot of money being paid, if not by taxpayers then by rate payers, who are very much the same group of people I might add, going to other parts of the country. And I want to know what is in it for us? What is the most robust role an offset program can play for intensely farmed areas, intensely worked land, like Georgia, where we have a small amount of things like renewables that we can build on a renewable portfolio standard? What is in it for us? If you fly over Georgia, you will see that all our forested land is laid out in nice neat little rows. What looks like forests are really just stands of crops to be harvested. They are planted to be cut. So what is in it for Georgia? What can we get out of this?

Mr. Eizenstat. First of all, good land-use planning should also be rewarded in the legislation in terms of no-till farming and the like.

Number two, companies in your district and in districts

throughout our State, the State that I grew up in, and yours, would have the same benefit as companies throughout the country. They are going to be under an obligation under a cap-and-trade bill to reduce their emissions. This affords them a less costly way of achieving their goal.

Mr. Barrow. But if I could speak for the skeptics caucus here amongst us. The leakage problems are the greatest. The measuring problems are the greatest. The verifiability problems are the greatest. What is the highest, what is the best outcome we are likely to get out of this as a practical matter given the relative complexity of our situation as opposed to the pristine simplicity of the interest you are trying to represent?

Mr. Eizenstat. Well, first of all, I don't believe there is a problem with verifiability, as I indicated. I think that the combination of establishing a national baseline, which should be required for a developing country, satellite telemetry, on-the-ground monitoring, all of those can assure that we have a verifiable credit that can be purchased by a company in your district to reduce the cost of their compliance. I believe firmly we are not going to be able to pass a piece of legislation that doesn't have effective cost reductions tied into it, so that it is a very effective way for companies in your district to be able to comply at a reduced cost.

Mr. Barrow. Well, that is usually important to me, so I want to pose my own yes-or-no question to other members of the panel.

Is there anybody on the panel here who doubts that we can participate in Georgia every bit as much as they can any place else for an offset problem? What are the problems that would affect our land use in seventh-generation managed land, like my family has got in Oglethorpe County, Georgia, as opposed to not cutting down old-growth forests in far parts of the world?

Mr. Gero. I for one will say absolutely that Georgia and other parts of the United States, the vast majority of the United States, are probably going to benefit greatly by an offsets program because offsets apply in sectors that are not likely to be capped, and agriculture and forestry are not likely to be capped sectors.

Mr. Barrow. I got an impression one reason why it is not going to be capped is it is so hard to manage in the first place. It is so hard to establish. It is hard to bring in a cap program.

Mr. Gero. It is hard to regulate from an emissions reduction standpoint, but it is not hard necessarily to write good strong rules to ensure the project is additional, that it is verified, and that in fact the ownership is clear and permanent.

Mr. Barrow. Does everybody on the panel agree that it is essential that we be able to participate in this at home as well? That we be able to offset it right here and right now?

Ms. Figdor. I would say, not through an offset program, but you can achieve the conservation goals that you are discussing by creating a fund domestically to sequester to improve the

sequestration of carbon in plants and soils. That fund would be created through auction revenue and would be a very important part of the solution of reducing -- achieving the deep long-term reductions in emissions that the science shows are needed.

So I believe it is a very important part of the solution, but shouldn't be done through offsets, because then it is done at the expense of actually achieving with certainty the cuts in emissions that science shows are needed. This should be done in addition to the cuts from large sources, like power plants.

Mr. Barrow. Does anybody else on the panel have anything to offer that I can take back home?

Mr. Stephenson. I was just going to say that if you auction the credits under a cap-and-trade program, there is going to be revenue generation that could be used for incentives. That is a separate argument from whether offsets should be part of a cap-and-trade program or not.

Mr. Martin. The only comment I would add is, and I don't know the specifics of Georgia per se, but in Alberta, they have a greenhouse gas market, and one of the offset projects that they have is this no-till agriculture. So from an area that is also heavily farmed, that is one way of reducing emissions, and it seems to be working.

Mr. Barrow. Thank you.

Mr. Chairman, I yield back.

Mr. Markey. The gentleman's time has expired.

There are about three roll calls on the House floor right now. And I think we would be well advised just to take a brief recess until approximately 5 minutes past 12:00, at which point we will reconvene the hearing and recognize the members. So, with that, we will stand in recess.

[Recess.]

Mr. Markey. Ladies and gentlemen, thank you so much.

I think we are going to have clear sailing for a little bit of time out on the House floor. So, as a result, we can continue uninterrupted for a fairly good period.

Right now let me turn and recognize the gentleman from Virginia, Mr. Boucher, for his round of questions.

Mr. Boucher. Well, thank you very much, Mr. Chairman. And I want to compliment all of the witnesses on their superbly presented testimony here this morning.

Ambassador Eizenstat, if I may ask a couple of questions of you, you have strongly advocated for tropical forestry preservation. I agree with you that that should be an eligible subject of offsets. Do you see other international offset opportunities, or should we limit the eligibility just to tropical forest preservation?

Mr. Eizenstat. No, I don't think we should limit it at all. I think there may be other opportunities as well. My focus is on the forestry issue. But you can have methane capture. There are a whole host of other ways in which developing countries can

reduce their greenhouse gas emissions, and they should be incentivized to do it.

I would also like to say, Mr. Chairman, that we focused almost entirely on the issue of forest carbon credits. But even in the forestry area, there are other things that we think should be in the bill. For example, market readiness, a dedicated funding stream, that could be done by development assistance to support efforts to build capacity in developing countries, not only for forest but for methane capture and others, to develop their monitoring networks. Then we have talked about the credits as well. And the third is direct support for other forest carbon conservation actions, like actions against illegal logging, additional allowances within a domestic cap to address early action and things like that. So I think that forests are one area. Even within that area we should look at market readiness and conservation, but that there are other ways to get developing countries engaged in this. And we should see that as a step toward ultimately getting them to take a cap-and-trade.

Mr. Boucher. You have faulted the clean development mechanism that is an aspect of the European emissions trading system. Given the problems that have existed with that, what level of confidence should we take, that if we go beyond the readily verifiable tropical forestry eligibility, and we go into developing countries with things like methane capture and other types of credits, that we can have confidence in the verifiability

of those offsets?

Mr. Eizenstat. That is a very good question. I mean, land-use practices are also something that is very important in developing countries. The COMESA Group is very much in favor of that. That can be monitored also by telemetry and on-the-ground monitoring.

The reason the CDM is not a good model, and I have to say I am somewhat surprised that the testimony from GAO would stress so much and then extrapolate that onto a very different system, it is a project-by-project system. It is not the kind of broadbased carbon market system that we are talking about. So I think that one can have a great deal of certitude. The CDM is bureaucratic. It has to be approved on a project-by-project basis by a bureaucracy. It hasn't approved one forest-based project at all. It is very flawed. It is really something we should be moving away from. So it is not a model at all for what I am talking about.

Mr. Boucher. Okay. Thank you.

Mr. Martin, let me pose one question to you. Do you believe that Shell would have endorsed the blueprint put forward by USCAP and the targets and time frames for taking greenhouse gas emission reductions in the absence of that blueprint's availability of offsets, which as I understand it would be 1.5 billion domestic tons and 1.5 billion international tons annually?

Mr. Martin. Probably not. And the reason for that is that

the kind of technologies that we are going to need in the longer term to hit some of these very aggressive targets, like capture carbon sequestration, just aren't available yet. And the costs of those initial projects are going to be much higher than the next 10 and the 10 after that. So, really, the abilities to use offsets is that bridge mechanism to allow us to put more funds into some of the technologies that we know we are going to require in the future.

Mr. Boucher. And so by allowing offsets, we provide a space and time for technology to catch up.

Mr. Martin. Absolutely.

Mr. Boucher. And so your believe is Shell would not have endorsed the USCAP targets and time frames in the absence of the offsets.

Mr. Martin. I can't categorically say no, but that is my view, yes.

Mr. Boucher. Okay. Thank you.

Thank you, Mr. Chairman.

Mr. Markey. The Chair recognizes the gentleman from Louisiana, Mr. Scalise.

Mr. Scalise. Thank you, Mr. Chairman.

There is a statement that the National Alliance of Forest Owners wanted to submit for the record. If I could have that submitted into the record?

Mr. Markey. Without objection it will be included in the

record.

[The information follows:]

***** COMMITTEE INSERT *****

Mr. Scalise. Thank you.

Mr. Stephenson, the statements I think in your presentation you talked about the complications of, what is an offset? Is it a tangible good? If you could describe to me how you really determine what an offset is.

Mr. Stephenson. I don't know how best to answer that. It is being treated as a tangible good if you use it in a marked-based system. However, the problems in estimating what occurs in the future versus what have occurred under a normal business scenario is where it creates uncertainty and risk.

Mr. Scalise. Have you all seen that there are various definitions and maybe varying definitions that could create completely different interpretations on what somebody actually is buying?

Mr. Stephenson. Certainly in the voluntary market in the U.S., there are a number of different verification schemes and estimating schemes. The reason the ETS didn't approve forestry projects and agriculture projects was because it is inherently difficult to estimate what you are getting for that. So in deference to what the Ambassador said, we think that is a high-risk proposition.

Mr. Scalise. Are some offsets more credible than others?

Mr. Stephenson. Yes. Certainly methane capture from landfills is fairly easy to measure. But, again, you have the

problem of additionality. If a landfill may want to capture methane anyway because the market value is going up for gas in the broader use of methane, the more economic incentive a landfill would have for doing that anyway, without an offset program.

Mr. Scalise. Are there any estimates on how much we would be sending overseas to purchase international offsets?

Mr. Stephenson. We really haven't looked at that.

Mr. Scalise. I don't know if anybody else on the panel can address the question of international offsets.

Mr. Eizenstat. Yes. The International Offset Program, Congressman Scalise, would not be sending U.S. taxpayer money abroad; although there may be some foreign assistance to help with capacity building. This would be private-sector money, a decision by a U.S. company, which it wouldn't be required to do, that it would like to meet part, not all, of its obligation to reduce emissions by purchasing an international credit from abroad. That credit certainly has to be verifiable and so forth. But that is a private-sector decision using private money.

Mr. Scalise. Dr. Wara, you talked about some of the problems or experiences that China -- I think China has gotten a significant amount of money from the European Community on offsets. I think \$6 billion was a number I had seen. Can you describe what they did get and for what did they get it for?

Mr. Wara. Well, the credits issued by the CDM to date are mostly from these industrial gas projects that I talked about

earlier where costs of reduction are very low relative to the current, even the current market prices for CDM credits, which have fallen considerably because of the crash and the EU emissions trading scheme market and costs by the recession. But those projects actually, I think, are additional in the sense that they would not have happened but for the CDM.

On the other hand, when one steps back from the current mechanism and says, are there more cost effective ways to address industrial gases in particular, I think the answer has to be yes. And the model that has worked very well under the Montreal Protocol to limit emissions of those undepleting substances in developing countries could be applied very effectively in this context. And in fact, there are discussions within the Montreal Protocol context of revising that treaty to include some of these gases, so that might be possible.

Mr. Scalise. Now, what is there to tell us that Europe wasn't paying China to do things that China was already going to do to build nuclear plants, which they are doing anyway?

Mr. Wara. So, I think that issue is a big one in the energy sector. And moving forward, one lesson from the early experience with CDM is that big projects tend to be more successful than small projects because they more easily overcome transaction costs in the system which are high. So in the energy sector in China, particularly with the construction of natural-gas-fired power plants, which essentially all gained registration under the CDM,

which is the precursor to getting credits issued, I think there are real questions about whether those plants would have been built anyway. And in that context, I think Europe is paying for things that would have happened anyway because they are in the interests, in China's energy security and national security interests.

Mr. Scalise. Thank you.

Mr. Markey. The gentleman's time is expired.

The Chair recognizes the gentleman from Washington State, Mr. Inslee.

Mr. Inslee. Excuse me if some of you have gone through this exercise before, but we have to do this at every hearing it seems, which is to compare the cost of the status quo, which is inaction and continued climatic change and all it portends, with the cost of action, which is curtailing CO2 emissions. You were asked a question by Mr. Shimkus about the costs associated with this. Many of us, including Lord Stern, who has done the most authoritative research on this, have concluded that the cost of inaction will greatly exceed by a factor of five the cost of action associated with a well designed CO2 emissions plan globally. I think he put the figure of 5 percent reduction of GDP if we do not act on this.

It is my belief that a well-crafted plan will actually cost less in comparison to the costs associated with inaction with the damages to the U.S. economy associated with that. I will just go

down the row and ask if people agree or disagree or have no opinion on that.

Doctor?

Mr. Wara. Agree.

Mr. Eizenstat. 100 percent agree.

Mr. Martin. Agree.

Ms. Figdor. Strongly agree.

Mr. Gero. Absolutely agree.

Mr. Stephenson. I agree. In fact, the re-insurers in the insurance market in climate change have already recognized the value of inaction in their premiums that they charge.

Mr. Inslee. So let me say that those who are opposed, this is just one congressman talking for a moment, those who will make the most noise saying that this program is going to cost the U.S. economy, will cost five times more than those of us who want to engage in action. That is a bold statement. I think it can be backed up. The shoe will be on the other foot during this debate, and so let the discussion begin.

I want to ask about the general idea of offsets in a forest setting. My take on this is that the only way to really have a long-term credible program is to make sure we get additionality in saving forests. And the only way to do that is to have a national nation-by-nation program to assure that when we buy forestation, we in fact get more forestation in the Nation, not just the individual plot of land. The reason is that, if we buy a plot of

land, we buy a lifetime easement or a permanent easement, and the next-door neighbor just clearcuts his land, you haven't got anything for your money.

So, Ambassador Eizenstat, I read your testimony. I didn't get to hear it, but I read your testimony, and I sort of understand you saying we need to start into that process, but we can start before we have those in place. Could you elaborate on that?

Mr. Eizenstat. Yes, sir. We should not look at the different modes of dealing with avoided deforestation and cutting forests as oppositional to each other. We, for example, can have set-asides. We can have foreign assistance that can prepare countries to develop their monitoring systems. We can have the forest credits that we have been talking about internationally, and consider all of those together, not an either/or. We will need all of those.

Second, I want to emphasize very strongly, these are highly verifiable. The Eliasch report that just came out from the UK said it is easier to verify forest carbons emissions than it is other emissions. And the reason is the combination of satellite telemetry, which is now highly developed, being used by Brazil -- NASA and Cisco just announced this week a joint venture on that, you have got Google and others who really have that capacity. You combine that with on-the-ground monitoring and a national baseline; you allow a set-aside. So you say, we are not going

include 100 percent of forest. Let us take into account there may be a fire. There may be policy changes, and you bank that, bank it and insure it, so that if there is a problem you have got a safety valve involved as well. You combine all of that, and you have got a highly verifiable system. We need to start on that immediately and we can start on it again by market readiness, by ODA, by set asides. All of those things are necessary in addition to the carbon credits working together to provide an incentive not to cut the forests. And again, I really feel so strongly about this because we are cutting these forests down, Mr. Inslee, at the rate of one football field a second. Once these forests are gone, they are gone forever. The habitats are gone. The people who depend on them, the rural poor in these developing countries, will have to migrate. We will start a terrible cycle.

Mr. Inslee. Thank you.

Mr. Markey. The gentleman's time is expired.

I know, Mr. Eizenstat, you wanted to add one more thought.

Mr. Eizenstat. I am sorry to the committee. I have to leave, and I appreciate -- I wanted to make a couple of points. The first is the point I was just making to Mr. Inslee. We should not look at these things as being whether you are for foreign assistance, whether you are for set-asides, whether you are for carbon markets. The amount of money that needs to be aggregated, private-sector money, that needs to be aggregated to provide the incentive for countries that have every incentive to cut these

forests is enormous. So we should be looking at all combined as a way of doing it.

Second, these credits would only be provided after performance is demonstrated, not before. They have to demonstrate over a period of years that they are not cutting their forests down. Only then do they get their credits. And again, we can use insurance schemes, set-asides, banking of credits and zones in the forest to make sure that if they slide back, that they pay a price for it. All of these together are necessary.

And then last, on the EU. The EU, Mr. Stephenson, I can tell you from experience having been ambassador there, having been at Kyoto, they don't believe in market mechanisms, period. And that is one of the problems they had with forestry credits. They just don't. Now, they are coming around to it because their industries are also saying we can't afford this 20-20-20 target unless we have offsets, so they are moving. But there just is a mentality against market mechanism that, thankfully, we don't have in this country.

Mr. Markey. Thank you, Mr. Eizenstat.

And we thank all of you for your excellent testimony today. It is going to be very helpful to us in the formulation of the draft legislation which we are putting together right now and towards the goal of passing legislation by Memorial Day. We thank you all.

This hearing is adjourned.

[Whereupon, at 12:35 p.m., the subcommittee was adjourned.]