S. HRG. 111–795

GLOBAL WARMING LEGISLATION: CARBON MARKETS AND PRODUCER GROUPS

HEARING

BEFORE THE

COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

SEPTEMBER 9, 2009

Printed for the use of the
Committee on Agriculture, Nutrition, and Forestry

Available via the World Wide Web: http://www.agriculture.senate.gov

U.S. GOVERNMENT PRINTING OFFICE
62–715 PDF WASHINGTON : 2011

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

TOM HARKIN, Iowa, *Chairman*

PATRICK J. LEAHY, Vermont
KENT CONRAD, North Dakota
MAX BAUCUS, Montana
BLANCHE L. LINCOLN, Arkansas
DEBBIE A. STABENOW, Michigan
E. BENJAMIN NELSON, Nebraska
SHERROD BROWN, Ohio
ROBERT P. CASEY, Jr., Pennsylvania
AMY KLOBUCHAR, Minnesota
KIRSTEN GILLIBRAND, New York
MICHAEL BENNET, Colorado

SAXBY CHAMBLISS, Georgia
RICHARD G. LUGAR, Indiana
THAD COCHRAN, Mississippi
MITCH MCCONNELL, Kentucky
PAT ROBERTS, Kansas
MIKE JOHANNS, Nebraska
CHARLES E. GRASSLEY, Iowa
JOHN THUNE, South Dakota

MARK HALVERSON, *Majority Staff Director*
JESSICA L. WILLIAMS, *Chief Clerk*
MARTHA SCOTT POINDEXTER, *Minority Staff Director*
VERNIE HUBERT, *Minority Chief Counsel*

CONTENTS

GLOBAL WARMING LEGISLATION: CARBON MARKETS AND PRODUCER GROUPS

Wednesday, September 9, 2009

U.S. SENATE,
COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY,
Washington, DC

The Committee met, pursuant to notice, at 10 a.m., in room SH–216, Hart Senate Office Building, Hon. Tom Harkin, Chairman of the Committee, presiding.

Present: Senators Harkin, Conrad, Lincoln, Stabenow, Casey, Klobuchar, Gillibrand, Chambliss, Lugar, Johanns, Grassley, and Thune.

STATEMENT OF HON. TOM HARKIN, U.S. SENATOR FROM THE STATE OF IOWA, CHAIRMAN, COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

Chairman HARKIN. Good morning, and welcome to this hearing of the Committee on Agriculture, Nutrition, and Forestry on proposals for global warming legislation.

Senator Chambliss is on his way. We have to get started because we are up against kind of a time crunch here. This hearing will adjourn promptly at—no later than 12:30.

Our witnesses today will help us examine issues in structuring and regulating markets for greenhouse gas emission allowances. They will share the views of a cross-section of agricultural producers regarding the pending legislation.

Let me start by reiterating the urgency and importance of addressing global warming. I had a chart here that I keep using, if I can have it here again. I do not know if you can see it from the back. But as this chart shows, the concentration of carbon dioxide in the atmosphere has increased by about 50 percent over the last 150 years. We are now seeing the effects of that in rising global average temperatures. You can just see how rapidly it is going up increasingly from about 1980 on up at an ever increasing rate. And the ten warmest years on record, all occurred in the past 12 years. And just last week, Science magazine reported that temperatures in the Arctic are at the highest levels in the past 2,000 years.

In plain words, we humans are changing the Earth's climate. And while we do not know precisely all the consequences of our current climate trends, we do know they are likely to include more severe storms, more frequent and severe heat waves, in addition to rising seas and higher temperatures.

I agree with the majority of Americans who say that we must act to mitigate these effects. We must not simply leave future generations to cope with a hotter and more dangerous climate.

Our Committee began to consider the role of agriculture and forestry in reducing greenhouse gas emissions and the consequences of cap-and-trade at our first hearing in July. Today we will examine these issues at the farm level. We will hear from a corn and soybean farmer, a rice farmer, a grape grower and vintner, and a dairyman. In addition, we are obviously going to hear from the Chairman of the Commodity Futures Trading Commission at the outset to talk about the aspect of how these markets might be regulated by the CFTC.

Now, while we could not include representatives of every type of agriculture, I trust the testimony and discussions of these witnesses will begin to provide us with a better sense of on-the-ground effects that our agriculture sector is likely to see under global warming and under mitigation strategies.

We will hear from farmers and ranchers how they might benefit through actions such as the installation of digesters to reduce methane emissions from livestock production and other forms of methane emissions; cropping practices such as no-till farming or applications of biochar that increase carbon contents of soils; increased demand for renewable energy resources such as biofuels and wind power.

As the Committee with the responsibility for legislation governing commodity futures markets, the Senate is looking for our guidance on how to structure and regulate markets, and our first two panels will provide testimony on that issue.

If we are serious about a cap-and-trade system, we must get the trading part right, and that means effective, practical regulation and oversight so the markets work. The benefits of a cap-and-trade approach have been clearly stated: use the market system to reach the least expensive path to reducing greenhouse gas emissions. But the potential costs if these carbon markets blow up cannot be overstated. Markets that are not properly and carefully regulated will blow up, and the economy and environmental goals of the program will blow up with it. This market has the potential to be a very big and very complicated part with a lot of money at stake, and we have seen what can happen when there is not sufficient transparency, accountability, or limits on risky behavior in markets.

We should not put too much faith in the markets alone to deliver results. Do we want to repeat the adverse impacts of excessive speculation in the crude oil market last year for carbon? Do we want to replicate for allowances and offsets the free-wheeling derivatives market that helped bring down our economy?

We must avoid the dangers of excessive speculation or price volatility or so-called innovation that turns out to be all about short-term profit and simply creates greater risk instead of just managing the risk.

Some of the ideology and recklessness that helped drive our economy and our markets over the cliff are now surfacing in discussion of a cap-and-trade system. I find this troubling. We have learned a lot from years of both regulating commodities and previous cap-and-trade efforts from both regional and international carbon mar-

kets, and it is imperative that we incorporate those lessons into a properly regulated new carbon-trading regime.

In closing, I want to thank Senator Chambliss, thank you and all of your staff for the support in planning this hearing. I look forward to working with you as we outline the appropriate representation of agriculture and forestry as we provide guidance for the structure and regulation of greenhouse gas emissions allowances markets.

I would now turn to Senator Chambliss for opening comments.

STATEMENT OF HON. SAXBY CHAMBLISS, U.S. SENATOR FROM THE STATE OF GEORGIA

Senator CHAMBLISS. Well, thank you, Mr. Chairman, and thanks for holding this second hearing on cap-and-trade and its effects on agriculture. In spite of the news I saw on TV this morning, I hope you are going to be holding many, many more agriculture hearings. Things do happen in politics, but you have been a great friend on this as well as every other issue involving agriculture.

I suspect that you and our colleagues on this Committee heard from many constituents, not just those involved in agriculture, over the August recess on cap-and-trade and climate legislation. I certainly did. It was clear to me that they want the Senate to very carefully consider all aspects of this issue and not rush to pass legislation.

I look forward to hearing from CFTC Chairman Gensler who has certainly jumped into the fray on a number of issues, and, Mr. Chairman, we appreciate your great leadership, your involvement, plus your continued dialog with the Hill. You committed to do that during your confirmation process, and I thank you for doing exactly what you said you were going to do.

Additionally, we will hear directly from those that will be regulated under a cap-and-trade system. Exelon, as an energy generator, will be required to purchase allowances and, therefore, deserves a workable risk management system within any newly created market. And CME Group, with its pending Green Exchange venture, will be subject to CFTC regulation as a designated contract market.

I expect any domestic carbon market would work much like existing commodity markets, though with a few notable differences. As the Committee with jurisdiction over commodity pricing and trading, we need to ensure we are fulfilling our responsibilities and weighing in with our colleagues on the issue of regulating any such carbon commodity market.

The issue of market regulation has not received the careful consideration that it justly deserves. To date, this Committee has focused its discussions on the impact on farmers and ranchers, and I am pleased that we will continue to hear about that important topic today.

As many of you know, the Texas A&M University's Agriculture and Food Policy Center recently released a report using its Representative Farms Data base to model the effects of the House climate bill on the farm level. For those of you here today who are not familiar with representative farm studies, they are commonly used in agriculture to model the effects of proposed legislation on

the micro level or at the individual farm level. The AFPC has been doing this type of work for Congress for more than 25 years. While the macroeconomic studies help Congress understand the effects of proposed legislation on agriculture as an industry, it is the representative farms that provide the ground truth of these proposals.

The ground truth that this study shows is very serious. The study says that 71 out of 98 farms will be worse off under the House cap-and-trade plan, even in the early years of the program. Most concerning, the 27 farms that benefit do so only because other producers go out of business. Not one rice farm or cattle ranch benefits, while only one cotton operation and one dairy benefit, mainly due to the fact that they both grow a significant amount of feed grains.

While intuitively we knew that there would be winners and losers in cap-and-trade, we did not know that the benefits and costs would be so disproportionate and regionally perverse. How can we as members of the Agriculture Committee endorse a policy that disproportionately favors certain commodities and, thus, only one part of the country at the expense of all others?

Mr. Chairman, I know you are very proud of your corn and soybean farmers in Iowa. You should be. But how can I reasonably support a bill that will put farmers in Georgia in a worse position or farms in California or farms in the Southwest, while transferring the benefits to the Corn Belt through attrition?

I look forward to hearing from the producer panel today with their thoughts on the House bill and the likely effects it will have on producers as reflected in this study. Given the complexities of the market issues and the negative effects likely to be felt by producers, Mr. Chairman, I think you were wise to plan for additional hearings. I hope our staffs can get together during this week and plan for the next hearing, and I thank you again and appreciate your leadership and your work on this issue.

Chairman HARKIN. Well, thank you very much, Senator Chambliss. Again, you are correct, we have to make sure that agriculture is treated fairly and equitably in this cap-and-trade legislation. I am committed to that. And we have to be cognizant of its varied impacts, depending upon what type of agriculture you are in and what part of the country you live in. And, hopefully, we will be able to address those and work those out as we move ahead on that. Obviously, we do not have jurisdiction over all that, but we will have jurisdiction over at least making our intents known to the Environment and Public Works Committee, I guess it is, before they start marking up.

We have a full panel today. As I announced earlier, we have to adjourn here by no later than 12:30. I am going to ask that each witness take 6 minutes. I am going to be—I have never been very strict on the gavel before, allowing people to go over, but I think we are going to have a lot of people who want to ask questions here today. So I am going to ask each of our panelists no more than 6 minutes at the maximum to discuss your papers. That will give us 54 minutes, and that will leave us about an hour and a half for questions. And I am going to ask for 5–minute rounds on questions also.

So we will start off with the Honorable Gary Gensler, Chairman of the U.S. Commodity Futures Trading Commission. Your statement will be made a part of the record in its entirety, as will all statements—and I read most of them last night—be made part of the record in their entirety. I would ask you just to sum up, as I said, in no more than 6 minutes.

Mr. Gensler, welcome again to the Committee, and please proceed.

STATEMENT OF HON. GARY GENSLER, CHAIRMAN, U.S. COMMODITY FUTURES TRADING COMMISSION, WASHINGTON, DC

Mr. GENSLER. Thank you, Mr. Chairman and Ranking Member Chambliss. It is good to be back together with you and members of the Committee. My testimony will focus on the Commodity Futures Trading Commission's experience regulating emissions trading markets and how we can apply those experiences to trading in government-issued greenhouse gas allowances and offset credits. I am testifying on behalf of the full Commission, our four Commissioners, as I was glad to do the last time I was with you as well.

We believe that effective regulation of carbon allowance trading will require cooperation on the parts of several regulators. There are five components that I believe should be considered: first, the standard setting and allocation, and, of course, the environmental compliance that goes along with that; second is recordkeeping, maintaining a registry for the allowances and offsets; third, overseeing trade execution systems; fourth, overseeing clearing of trades; and, fifth, protecting against fraud, manipulation, and other abuses.

Now, in terms of these first two components, those fall within the expertise of other agencies other than the Commodity Futures Trading Commission. In other words, there are others better equipped to regulate the "cap" part of cap-and-trade.

EPA, for example, currently issues allowances on sulfur dioxide and nitrogen oxide as mandated under the Acid Rain and Clean Air Market Acts. On a smaller scale, a group of ten States from Maryland up to Maine has the Regional Greenhouse Gas Initiative and issues allowances on greenhouse gas emissions. And in each of those cases, other entities issue the allowances, do the environmental compliance, and maintain the registry. The constant, however, in all of these markets is the CFTC currently regulates the emissions futures trading markets. In other words, the CFTC has a great deal of experience regulating the "trade" part of cap-and-trade.

We have broad experience in the latter three components of carbon trading: regulating the trade execution systems and clearing of trades and protecting against fraud, manipulation, and other abuses. The Commission already oversees this trading and clearing of emissions futures and options contracts of the New York Mercantile Exchange and the Chicago Climate Futures Exchange. Additionally, just last month, under direction from Congress in last year's farm bill, the Commission began looking into if the Carbon Financial Instrument spot contract traded on what is called the Chicago Climate Exchange, a sister exchange to the futures exchange, is actually a significant price discovery contract. So the

Commission has abundant experience in the regulation of centralized marketplaces, and should Congress seek to regulate cash markets for emission instruments, the Commission is well suited to carry out that function as well.

The Commission has thorough processes to ensure that exchanges and clearinghouses are in place to protect market participants and ensure fair and orderly markets, and that trading in these exchanges comply with the law and regulations. Our surveillance staff keeps a close eye on the signs of manipulation and congestion and determines how to best address, and we have the authority to set position limits as well within these markets.

The CFTC also has wide-ranging transparency initiatives, and it is designed to provide as much information to the American public as possible. So should you go forward with the cap-and-trade legislation, the CFTC would work with other regulators and market users to make sure that the transactions that occur—transactions that would have to be recorded on a registry kept by the EPA or USDA or others—that that registry be updated on a very real-time basis so that there would be market transparency.

The CFTC, however, if you were to move forward, would need additional resources. I fear that I keep saying this, but the staff and technology to effectively regulate the expanded carbon markets. We have the expertise. We would probably need some additional resources.

We also would want to work with Congress and look forward to working with Congress to enact broad, comprehensive reform of the over-the-counter derivatives marketplace. This reform must also include an oversight of the emissions and allowance markets if they were to develop in the over-the-counter space as well.

As Congress moves forward and possibly regulated cap-and-trade legislation, I look forward to working with this Committee to ensure that the new markets are comprehensively and effectively regulated. I believe the CFTC does have the expertise and experience necessary to help regulate the growth in carbon markets, and we must protect against the same hazards in the carbon markets that we currently guard against in other commodity futures markets, particularly fraud, manipulation, and other abuses.

I thank you for inviting me here today. I look forward to your questions. I did it in 4 minutes.

[The prepared statement of Mr. Gensler can be found on page 74 in the appendix.]

Chairman HARKIN. That is perfect. Thank you very much, Chairman Gensler, and I will say that we will have just 5–minute rounds. Again, I hope that we will respect each other's time on that and try to limit it to 5 minutes, and I will start off and start my clock at 5 minutes.

Chairman Gensler, two things I want to ask. If we have a cap-and-trade system for greenhouse gas emissions, is there really a need for an over-the-counter market? And, second, I am concerned about derivatives. If we allow trading of derivatives on greenhouse gas offsets and allowances, would it make sense to require at the end date of a future or other derivative contract that there be a transfer of the actual offset or allowance, not simply a cash settlement?

I ask both those questions because of my concern about derivatives on offsets or allowances and then derivatives on those derivatives and derivatives on those derivatives, and we are right back where we started before. And so I repeat: Is there a need for an over-the-counter market? And, second, should there at some point near the settlement date be some delivery of the actual offset or allowance and not simply a cash settlement?

Mr. GENSLER. Mr. Chairman, I appreciate your question. It continues a dialog we have had before in these hearing rooms. I believe that all futures on these carbon markets should be on exchanges, just as we have all futures for corn and wheat and oil and natural gas on regulated exchanges, and we are equipped to do that. I believe working with Congress, we need to make sure that any—what is currently called over-the-counter derivatives or swaps on these are brought under regulation, that the dealers in carbon markets, just like the dealers in oil or in wheat markets, should be fully regulated for capital and so forth; and that the standard contract should also be brought on exchange rates, standard swap contracts for these carbon allowances.

But I do believe that there are going to be times where there is going to be tailored product that cannot readily be brought onto a centralized clearing. An example might be that if you wanted to build a utility in Iowa or in Georgia or in any one of your States, and that utility wants to bring on a financing for 10 years or even 20 years, you might want to lock in—that utility might want to lock in the price of the carbon emissions out 10 and 20 years, and that might not be readily available on a market.

I do believe, though, working with Congress, that contract too should be under regulation by making sure that the dealer who is transacting that has to have the capital, has to report it to the regulators, the EPA and possibly other regulators regulating the cap side, and also to the regulators regulating the trading side as well.

Chairman HARKIN. How do we control the possible proliferation of derivatives on greenhouse gas emissions and the speculation thereon?

Mr. GENSLER. Well, I think as we are working with Congress to bring the whole over-the-counter derivatives marketplace under regulation, we must do that here as well; that the dealers in these contracts must be regulated for transparency, 100 percent of their transactions, whether they be tailored or standardized; but also if you were to move forward and ask the CFTC to regulate that, that we be able to set aggregate position limits across those traded in the futures market as well as those in what might be in this tailored or still bilateral market.

Chairman HARKIN. One last thing. I hope that you and the other Commissioners and your staffs will continue to monitor what is being done here—not here, but in the Congress—so that at the appropriate time, when this legislation looks like it is mature and is ready to go to the floor, that we could get from you what resources you would need to carry out the provisions of the bill in order to provide adequate oversight and regulation.

Mr. GENSLER. We will do that, Mr. Chairman, and I commit to work with you and the appropriators to share that with you.

Chairman HARKIN. I just want to make sure they just do not dump on your lap all this stuff without the resources that you would need to regulate and have this oversight.

Mr. GENSLER. Thank you.

Chairman HARKIN. Thank you, Mr. Chairman. Thank you, Chairman Gensler.

Senator Chambliss?

Senator CHAMBLISS. Thank you, Mr. Chairman. And let me just echo that, Mr. Chairman, because you and I have talked before about the fact that I think you are underresourced right now for what you have been charged to do; and I think you are finding that out every day you go to the office. So we need to make sure as we go through the whole financial overhaul, restructuring that we do not load you up with something else that would prevent you from being able to do your current job.

I want to continue along that same line. I understand what you are saying about seeking to regulate all of these contracts and put them all on exchanges, but we know that today where the only cap-and-trade market that is functioning is in Europe, about 75 percent of contracts are traded over the counter. If they have been at this for a while and they are trading that high a percentage over the counter, what are we going to do different to try to bring those contracts onto the exchange?

Mr. GENSLER. Senator, I believe that you are right to look—Europe does give us some guidelines as to what might happen here. There are actually three marketplaces. There is the futures marketplace, where actually in Europe that market is all on exchange, the futures. There is a cash marketplace, and I think that is what you refer to. Some of that is off-exchange, of course.

If I could say it here, if a farmer in Iowa wanted to transact and sell an offset to another farmer in Iowa or maybe in Georgia, they might do that over the counter.

Third, there is the swaps or derivatives marketplace. I believe that we have to have 100 percent of the futures marketplace regulated, just as we do in corn and wheat and oil. I believe that we have to have the standard derivatives contracts onto exchanges, as we are trying to do with Congress in other contracts as well, and that leaves the question on the cash markets. Can one farmer transact with another farmer? And I think that is probably appropriate. But if a centralized market comes together, I think we have to regulate that centralized market to protect against fraud and manipulation. These election trading platforms should have oversight and regulation, I believe.

Senator CHAMBLISS. Does the proposal by the administration that has come forward from Treasury, and while it is not firm yet by any means—and I know you have some issues with it. We have some issues with it. But the proposal that is out there, does that, do you think, give you the appropriate power to regulate the carbon contracts also? Or are we going to have to make some changes in that?

Mr. GENSLER. I believe that the administration sent up to Congress a very strong package and that that package actually, to your question, does cover in the definitions of swaps contracts on emissions, allowances, and offsets. If it does not, we will have to tweak

it, along with Congress, but the intent was, working with Treasury, that it did cover that.

Senator CHAMBLISS. Let us talk for a minute about this issue of standardized versus specialized contract, and we have got the same issue, obviously, out there today with a number of other commodities. But is there going to be any difference in trying to say that a contract on a carbon emission is a standardized contract if it does so-and-so versus an interest rate contract that is standardized if it does so-and-so? Where are we going to come down on this? And how are we going to define "standardized"?

Mr. GENSLER. I think it is very similar. What the administration put forward, and I support, is that the biases toward bringing more transparency and lowering risk that standardized products are on exchanges or trading platforms and centralized clearing, if a clearinghouse accepted a carbon allowance swap to be cleared, then the presumption would be that it would be standardized.

That still might be the case that if somebody has to finance a 10– or 20–year utility plant, they could do that. But most likely the 1–year, the 2–year, or the 3–year carbon allowance trading would be largely standardized—maybe not entirely, but largely standardized.

Senator CHAMBLISS. OK. Just in addition to staying in touch with us relative to the resources, I think this issue is going to be critical with respect to the markets you have jurisdiction over now as well as any carbon contracts. And it is another reason I think we better be careful as we move ahead with cap-and-trade to make sure we get it right, and that if we are going to clear all of these contracts, with few exceptions—and I agree with you, I hope we can do that—we need to make sure that the traders out there on both sides of these contracts really have some direction. And I think we have got to be very careful that we give them the right kind of language to know what it is they are going to be dealing with.

Mr. GENSLER. Senator, I agree, and I also think you have highlighted the intersection of Congress' work between cap-and-trade and over-the-counter derivatives reform. These two legislative initiatives might be timed a little differently and through different committees at times, but they very much relate in the regards you just said.

Senator CHAMBLISS. Thank you, Mr. Chairman.

Chairman HARKIN. Thank you, Senator Chambliss. Senator Klobuchar was next, she is not here. Then we turn to Senator Grassley, Senator Grassley?

Senator GRASSLEY. Thank you, Mr. Chairman. Thank you, Mr. Gensler.

In your testimony, you state that emissions contract markets operate no differently than other commodity markets that CFTC regulates. However, there are members of the following panel that say these markets are quite different because the market is mandated by a Government-imposed cap and the market is ever reducing supply. So would you please reconcile these two points of view that the market really is different, but should be regulated in a uniform way as other commodities?

Mr. GENSLER. There are many similarities, like in the agricultural products this Committee oversees and their futures in corn

and wheat. There is an annual crop in a sense. There is an annual crop of allowances that are issued. It may be reducing instead of growing. Hopefully we think of corn and wheat growing, and this might be reducing.

It has some similarities to even Treasury bonds. Treasuries are issued by the Government. These are issued. Again, we would like to think that there would be fewer treasuries, but, unfortunately, there seems to be more every year. So there are many similarities.

Where the similarities depart—I would certainly look forward to working with this Committee and Congress to see if there is additional oversight we would need. But I think in terms of overseeing a trading market, there are far more similarities than there are differences to all the other products that are overseen, whether it be the agricultural, the energy, or the financial products that are currently overseen in the futures markets.

Senator GRASSLEY. Next, you mention briefly in your testimony about the recent public hearings that CFTC held on whether to set position limits on energy markets like we do in agriculture markets. Expand for me and the Committee on your findings at the hearings.

Mr. GENSLER. We had three hearings where we had 23 witnesses, and we had over 400 comment letters that came in. What we are looking at is Congress really directed in our statute that the CFTC set position limits—this was back in the 1930's—and we did so in agricultural products and still do so. We did in energy products with the help of the exchanges through June of 2001. And, in fact, it was just 8 years ago that we sort of backed away from that, and the exchanges now have what is called accountability levels rather than hard limits.

So we are taking a very close look as a Commission at this, all the comments, the thought really being that markets—how do we best promote a market, the fair and orderly market that no one party is so highly concentrated in that market that actually by being so large in the market, it sort of distorts a market and limits liquidity and limits the market function rather than adds to the market?

It is a lot to move forward, but if we were to move forward—and I say "if" because we have a Commission process—we are looking to do that in the fall with proposed rules. We would take more public comment through the usual means that we do that.

Senator GRASSLEY. Thank you, Mr. Chairman.

Chairman HARKIN. OK. Thank you.

Senator Klobuchar?

Senator KLOBUCHAR. Thank you very much. Thank you, Chairman.

Over 25 years ago, Minnesota was the first State in the Nation to adopt legislation to address acid rain, and since then, as you know, President George H.W. Bush in 1990 created the Acid Rain Emissions Trading Program. And so our country has had some experience with this, and I know this is an emissions program that is regulated by the EPA. However, the CFTC has oversight of emissions trading. Could you comment about how that is working and any analogies you can draw with the proposals before us?

Mr. GENSLER. Senator, I thank you. I did not know it was your home State that started that.

I think it has worked well. It is a small market, and much smaller than these anticipated markets. But under the Acid Rain and Clean Air Act, two products—sulfur dioxide and nitrogen oxide—are limited, and that is all done by the EPA. There is no offset program. It is more an allowance program. But then there are futures trading on these various contracts, and they are traded on something called the Chicago Climate Futures Exchange, and then also there is, I will call it NYMEX, or New York Mercantile Exchange, has—and I think you have a witness later today about that.

Those futures trade. They are under our current regulatory regime. So far there has not been any issues that are not similar to the other things that we oversee to protect against fraud manipulation. We oversee the clearing and the exchanges on these.

Senator KLOBUCHAR. And do you think it has been a success, the trading on that?

Mr. GENSLER. I think that the trading—I am not going to speak to the environmental side, which I have read a lot about, but it is other expertise. I think the trading has brought greater price discovery, that those participants in the market who want to transaction, have a broad national market; that natural hedgers, just like in corn and wheat and oil, have somebody on the other side who might take the other side, who is a speculator but is setting a price with them to ensure that outcome.

So I think in that regard, yes, it has been a success. It is still a very small market, of course.

Senator KLOBUCHAR. OK. So you think you could draw some knowledge and wisdom from that, but that this would be a much bigger project to tackle?

Mr. GENSLER. I think that is right.

Senator KLOBUCHAR. OK. And how does it compare with what is happening with the EU and how the EU has handled it?

Mr. GENSLER. Well, in Europe, you are right to mention that they, too, have gone forward, but they have a greenhouse gas initiative. They have two contracts, two trading—one is on the allowances, the EU allowances, and one is on emissions reductions or what we here call "offsets." And those two contracts trade very actively on the European Climate Exchange and on something called Bluenext, two different exchanges. One is regulated by a French financial regulator, the other by the U.K. regulator.

The open interest there, interestingly, is about the size—I just looked at it last night—about half a million contracts on the European Climate Exchange, which is about the size in open interest in corn or wheat, which are about 300,000 or 400,000 contracts. It is about a third of the size of WTI oil, which is about a million and a half open interest, just to give you a sense of the size of that market.

Senator KLOBUCHAR. OK. Since you have mentioned wheat a few times—and this is a little different topic—in January, the GAO issued a report in response to House Ag Committee Chairman Collin Peterson, who is a Minnesota Congressman, and he asked the GAO to examine issues surrounding the regulation of futures trading, as you know. And once noteworthy aspect of the report

was the conclusion that eight empirical studies generally found limited statistical evidence of a causal relationship between speculation in the futures market and changes in commodity prices. A recent report by Homeland Security revealed that speculation was, in fact, one of the major causes behind the recent fluctuations in wheat.

So could you comment on these reports and the connection between speculation and volatility of commodity prices?

Mr. GENSLER. We have recently—I think it was just last week—promoted greater transparency in these markets by disaggregating our weekly reports. We now also break out the index investors in the market. I think that the best role for the CFTC is to help promote transparency so market analysts can best answer the Senator's question.

I do think as it relates to wheat specifically, if I can narrow that, I do think that index investing in the wheat contract in Chicago—and it is a very narrow topic—probably did contribute to what is called a lack of convergence in the wheat market. That is, the price of futures and cash in the wheat market has not come together. And so I think a little bit over half of that marketplace in the Chicago wheat market is index investors, and I think that is one of the contributing—not the only factors, but contributing factors to the lack of wheat convergence.

Senator KLOBUCHAR. Thank you very much.

Chairman HARKIN. Thank you.

Now Senator Stabenow.

Senator STABENOW. Thank you, Mr. Chairman, and welcome, Chairman Gensler.

Mr. GENSLER. Good to be back in front of you.

Senator STABENOW. It is good to see you. Just as one member, I would indicate, and speaking to our appropriations leaders, that if we move forward on cap-and-trade, we certainly need to address resources to make sure the CFTC is able to fully address all of the issues involved in this, which are incredibly important.

I wanted to follow up more on the over-the-counter issue, which I think is a very important piece of all of this, and not only as we look at reforms that we are addressing here in this country, but in the House bill they would allow U.S.-covered entities to use international carbon instruments by the EU, the emissions trading system, or the UN's Clean Development mechanism to meet our domestic compliance purposes.

So given that approximately 75 percent of all the emission trading in Europe takes place over the counter, how do you see commonizing international carbon instrument compliance if the U.S. legislation were to restrict such instruments for compliance purposes to those traded on regulatory markets?

A second question would be, as a follow-up: Has the CFTC conducted an analysis of what impacts, if any, the administration's Over-the-Counter Derivatives Markets Act of 2009 would have on the domestic and international carbon markets?

Mr. GENSLER. Well, in the first question, I think that international cooperation is critical. I do not know where Congress will come out in terms of whether those allowances or offset allowances

over in Europe will be allowed here. But even if they are not, there is going to be some relationship of these two marketplaces.

I believe that we have to have full transparency even into the over-the-counter market. The over-the-counter swap market may still be allowed, but it should be fully regulated. We should have the transparency. Any dealer in those markets should be registered, and we should have 100 percent transparency into that, and we should report the aggregate positions.

In terms of the second question about the over-the-counter reform that has been proposed by the administration, it does include oversight of the carbon allowance markets. We have not had a separate study of that because it is such a small part, it is a small market in nitrogen oxide and in sulfur dioxide. There is a small market also between ten States, in New England down to my home State, Maryland, called the Regional Greenhouse Gas Initiative. But, again, it is small. We have not had an independent study yet.

But I do think that if we move forward, we must cover carbon allowances in what is being considered in the over-the-counter derivatives legislation that the administration sent up.

Senator KLOBUCHAR. So, just to recap, you are not seeing a problem in between what is happening internationally and at least at this point what the House bill has said in terms of using—allowing the international emissions standards versus what we are doing here? I mean, harmonizing that, would you have any recommendations as it relates to that?

Mr. GENSLER. My recommendation would be is if an allowance or an offset there is fungible into a U.S. system, if the Congress decides that it is fungible, then we want to make sure, just as oil is fungible worldwide, that we are looking at the aggregate markets, that we would have to be working even more closely with the FSA currently overseas and then there is a French financial regulator that oversees those trading markets over there. So fungibility puts a greater burden—this fungibility is a global fungibility of offsets. It puts a greater burden on the regulators to have a coordinated approach.

Senator KLOBUCHAR. And do you feel confident that you can achieve that?

Mr. GENSLER. I think we can, but it is a greater challenge because sometimes they have a different point of view than we do on how to regulate these markets.

Senator KLOBUCHAR. All right. Thank you, Mr. Chairman.

Chairman HARKIN. Thank you, Senator Stabenow.

Now Senator Casey.

Senator CASEY. Mr. Chairman, thank you very much, and, Chairman Gensler, thank you for your appearance again. You have appeared in front of many Senate committees, and we are grateful you are here again.

I am going to give you a little commercial in a moment, but I wanted to, first of all—that is because of your Pennsylvania connections, by the way, but I also want to commend your work. But we are here today to talk about a challenge that faces not just our country but the world, and the basic challenge is how to slow, stop, and reverse global warming. Obviously, there is legislation that is in the House, and the Senate is working on this as well. As we do

that, we have to be able to balance and take into serious consideration and implement strategies within the legislation to make sure that our farm families are not adversely impacted. I believe, though, by as much as it is a challenge, it is an opportunity. It is an opportunity not just to stop global warming and keep our environment clean, but it is also a jobs opportunity, to create jobs and also to enhance our national security.

We know that rural America, the families in rural America have been hammered by this recession. In fact, some of them were adversely impacted long before the recession with the high energy costs. Senator Gillibrand and I were just talking about our dairy farmers, all across States like Pennsylvania and New York and so many others, that have been adversely impacted.

We are grateful today that you are here. We are grateful for your work in restoring confidence and giving a sense of strategy and a sense of purpose to the work that you do as a regulatory body that needs, as I realize, more resources.

I know that later today we will hear from, among others, Luke Brubaker from Pennsylvania, and he was kind enough to provide some Pennsylvania crop insurance advertising. We are grateful for that, and we are grateful it was on the top of the pile of our papers. I want to thank him on behalf of the people of Pennsylvania.

Senator KLOBUCHAR. Would you like one?

Senator CASEY. Senator Klobuchar is passing out extra copies.

But that all leads back to you because I know you are a Wharton graduate. We are pretty proud of you, and we hope you come back to Pennsylvania and live and pay taxes and do all that.

[Laughter.]

Senator CASEY. But in the meantime, you have got a lot of work to do here in Washington.

I was especially impressed by and happy about the fact that in your testimony you said—I am looking at page 2. You said, and I quote, "As Congress moves forward with... cap-and-trade legislation, I believe it should ensure that there is a comprehensive regulatory framework over the expanded carbon markets..." I think those are very important words, "comprehensive regulatory framework." And then later, on page 6, you emphasized ensuring that "all transactions in both the carbon futures and cash markets are promptly reported and that a central registry is updated at least on a daily basis." And all of the concerns that you have raised about how we do this to get it right and to be able to regulate it.

I will ask in the very limited time that I have left, because I know I have talked for a couple of minutes here as a preface, but in terms of your resources, both human, staff resources as well as technology, tell us about what you need to do your job generally, but also in particular, if legislation is passed to give you this additional assignment, so to speak. What would you need specifically or as best you can guess in terms of people and resources? And on the technology part of it, is it both hardware, software, and other aspects of technologies?

I know it is a broad question, but you have all of a minute to answer.

Mr. GENSLER. Well, I thank you, and I appreciate the advertisement. If there is anything you like in what I do, you can credit it

to my University of Pennsylvania education. Anything that you do not like, you could credit to my wayward days elsewhere.

[Laughter.]

Mr. GENSLER. But in terms of needed resources, with Congress' help we have just gotten back to the size we were in 1999, about 570 people. We are going to submit, the Office of Management and Budget, to Congress in, I think, a week's time a much larger number, but it is going to be what we really believe we need to do our current duties. In technology, it is mostly software upgrades. We need to take our position and trading surveillance systems, probably spend on the order of $11 or $12 million, but we do not know—it is probably a multi-year project—to upgrade that to 21st century surveillance rather than right now it is too much after-the-fact surveillance.

Senator CASEY. Well, thank you very much, and, Mr. Chairman, both Chairman Gensler and I have been very careful on our time, so I will stop right here. Thank you.

Chairman HARKIN. Thank you very much, Senator Casey.

Senator Johanns?

Senator JOHANNS. Thank you, Mr. Chairman. Let me, if I might, start my questions with maybe a little bit of context. In our last hearing with the Agriculture Committee, I asked a question of one of the panelists, Lisa Jackson. If we do what the House bill wants us to do, what will the environmental benefit be? Will temperatures come down? Will we reduce CO2 emissions in the world? And the answer was no. You know, going it alone is not going to change much. Then soon after that, India and China weighed in, and they basically said, "We are not interested in capping emissions." So we are asking our farmers and ranchers to bear the burden of this when, quite honestly, I would find it very hard to make a claim to them that we are going to see really any environmental benefit.

Second, although there is some debate about the nature and extent of this, it is a given that they are going to have higher input costs. Now, like I said, we can have a great debate as to whether diesel fuel is going to go up X versus Y and this and that, but I think it is a given that they will pay higher input costs.

Now, I put that together with this notion that we have had in agriculture, especially as a result of the 2002 farm bill, that really what we are trying to do with agriculture is take some of the volatility out of it. We talked about the safety net and the loan deficiency program, the marketing loan program, the countercyclical program, the ACRE program. All of those are designed to kick in at a point where we take some of the volatility out of it.

You know, farming is one of those businesses: They cannot pick their price; they cannot predict the weather; they cannot predict what kind of pests they are going to deal with, and on and on. So it is a very, very difficult situation anyway.

Here is what worries me about your piece of this puzzle. I do not think there is anything that we could do that would guarantee that in the trading here that is going to occur that there is not going to be volatility. We might be able to define, to some extent, what the parameters of that are going to be. But it just seems the nature of this that there is going to be volatility.

Now, I think the Ranking Member made some excellent points. As I read the Texas A&M study, there are more losers than winners on this in agriculture. And even in the two farms from Nebraska that they analyzed, those are dryland farmers, and in Nebraska we irrigate. I think they would have been on the losing side of the equation because of higher electricity costs.

So my question to you is: How much should farmers and ranchers be worried about the volatility, the additional volatility that this cap-and-trade legislation is going to put into their lives? And how much does this bill prevent that from happening?

Mr. GENSLER. Senator, I think that you are right, as you said, that farmers and ranchers cannot pick the price, cannot predict the weather, and so forth. I think that what we can do moving forward with Congress is make sure that if you move forward, the trading side is most transparent so the farmers and ranchers can see that pricing; that if they want to hedge it, they can hedge it out a long time; and that the price that they get is created in a market that is free of manipulation and it is fair and orderly. That is our remit at the CFTC, is to make sure that price discovery is fair and orderly, it is transparent, and the farmer can hopefully hedge their risk out, you know, on a yearly or multi-year basis.

Senator JOHANNS. Here is the difficulty of that if you are a farmer, and I will use the turkey industry as a good example. When corn went to $6.50, $7, it wiped out the turkey industry in Nebraska. Just wiped them out. So if you have higher prices and you end up with that kind of situation with higher input costs, it will be zero consolation to that farmer when I call them and say, "I am sorry you went broke because of this thing, but it was transparent." Do you see what I am saying?

Mr. GENSLER. No, I mean, I see what you are saying. I am just addressing what we do well as a market regulator is assuring that there are markets that are not only transparent, but the price discovery function—and this is also for farmers or ranchers that would be having offsets and they wanted to sell those offsets, too, and get the benefit of a price that way as well, as a revenue, that that market is free from manipulation on the trading side of cap-and-trade.

Senator JOHANNS. Thank you, Mr. Chairman.

Chairman HARKIN. Thank you, Senator Johanns.

Let us see. Senator Conrad was next. Senator Gillibrand?

Senator GILLIBRAND. Thank you, Mr. Chairman.

Mr. Gensler, thank you so much for being here. We are extremely grateful for your testimony and your leadership on these issues. I have basically three areas of inquiry that I hope you can address.

The first is about the regulatory structure. I want to know your opinion on whether we should develop a regulatory structure for carbon trading that is distinct from other commodities, or would that, in fact, be more detrimental to the goal of providing effective market regulation and make it more difficult for the CFTC to do their job—enforce position limits, protect against fraud, and other regulatory objectives? So, basically, I would like your opinion on which regulatory structure you think is best and would be most effective?

Second, I want you to address a little bit more specifically about the clearing process. Equity and equity options are handled through an open format, and the multiple exchanges competing for business generally can bring down costs for both clearing and settlement, and it has had that effect over recent years.

Clearing for commodities remains a closed system that lacks any competitive dynamic, and as a result, the costs are higher associated compared to equity and equity options contracts.

So, in your opinion, is it better to create a new model utilizing a noncompetitive model? Or would you prefer to do a more open competition, open access market? Which do you think is more effective, and why?

Then the third issue is a little bit about over-the-counter and customized markets, what you would recommend? If we did have a customized market, an over-the-counter market, what would you recommend for that? And, in particular, do you believe it is appropriate to exempt anyone, particularly end users with bona fide hedges, from the mandate of everything having to go through clearing or an exchange? And do you think it would be appropriate and enforceable to exempt firms with inherent carbon risk—for example, utilities producers—from such a mandate?

So, essentially, do you imagine or would you recommend any trading of customized markets for the carbon exchange that would not necessarily have to go through clearing or not through an exchange rate, depending on what we choose? And then, second, if you do imagine an exception, what kind of regulatory oversight would you imagine? Because, clearly, you would want to have transparency and the regulators would need to know volume. But what would you imagine for the regulatory aspect of that piece?

Mr. GENSLER. Let me see if I can try to address all three of your questions and some of the subparts. It is good to be back with you, Senator.

In terms of regulatory structure, I think that the Commodity Futures Trading Commission does have the expertise and experience, does currently oversee the futures markets, albeit small, in emissions for these out of the acid rain program and even the regional alliance that I think both of our home States are in. So I think that is a good structure. We have two market regulators in this country. I am not sure we need a third market regulator. There is enough that we can harmonize between the SEC and the CFTC.

I think that in terms of clearing you raise a very good point. We have actually recommended for over-the-counter derivatives that we have an open model for clearing. We think that that will promote greater competition amongst exchanges and exchange platforms, and certainly I think it is worthy to think about that in terms of the carbon markets. We would certainly recommend that for the carbon over-the-counter derivatives marketplace, but you raise a question about carbon futures, which is a worthy question. Right now it is a more closed approach on the Chicago Climate Exchange, I believe, but I might be mistaken on that.

Now in terms of over-the-counter markets, I think that it is important to bring as much of the over-the-counter market into centralized clearing and onto exchanges as possible. Some will not be able to be standardized, of course. You raise a second question as

to whether, if there was a hedge that is entered into for accounting purposes, it is a bona fide hedge—I think, if I read into your question, might that be treated a little differently? The administration proposal was to grant the SEC and CFTC some rule-writing authority in that regard to allow some of that to be exempted.

I do have a concern that the more we exempt, the more that we might be years from now looking back at 2009's Enron loophole or something. So I think we have to be very careful in each of these categories in terms of exemptions, because we want end users to manage their risk appropriately, these tens of thousands of end users, but I think society also needs to lower the overall risk by bringing as much into central clearing as possible.

Senator GILLIBRAND. So if there is a customized market left, what would you have it look like? And who would be eligible——

Mr. GENSLER. Well, I think there will be a customized market, both in carbon markets as well as interest rate products and elsewhere. But I think the dealers in those markets have to be fully regulated so that the customized transactions and the standard transactions, the dealers would have to have capital; there would be business conduct to protect against fraud and manipulation so we could police the markets along with the SEC on the other products. These products would probably be more ours, oversight, and then the transparency, that not only as regulators we saw it, but we could aggregate the data and put it out to the public.

Senator GILLIBRAND. Thank you.

Chairman HARKIN. Thank you, Senator Gillibrand.

Senator Lincoln?

Senator LINCOLN. Thank you, Mr. Chairman, and thanks for holding the hearing today. Welcome, Chairman Gensler. We are glad you are back.

Mr. GENSLER. Good to see you again.

Senator LINCOLN. I would like to associate my comments with the Senator from Pennsylvania, Senator Casey, in terms of the challenges that we face, but the opportunities that we can find there. And I think there are great opportunities here.

I also want to associate my comments with him in terms of making sure that as we do move forward, we do not do so putting a disproportionate burden on our hard-working farm families and our agricultural communities across this country. They do a tremendous job providing food and fiber for the world, and I hope that as we look at what we are trying to do, we will keep that in mind always.

While it is not necessarily my preference to move on cap-and-trade legislation in the Senate this year, if the Senate is going to move on climate change legislation in the future, certainly the regulation of carbon markets is something that we have to get right. And we are certainly going to need you all at CFTC to help us do that, Mr. Chairman.

Under the cap-and-trade legislation, we are venturing to create kind of a whole new commodities market which presents, I think, a number of these challenges that we talk about and issues for Congress. And we thank you for your hard work in this area and the research you have already done in working to try and come up with those solutions.

Just a couple of questions for the Chairman. Obviously, CFTC could play such a large role, as you have mentioned, and has the capability to do that in regulating carbon markets under a cap-and-trade system. What would you say is probably the most important thing that you have learned or that we, all of America, should have learned or could have learned from the EU experience in regulating the carbon market?

Mr. GENSLER. I think that what we have learned from the European experience is these markets are going to be likely sizable, that we have to bring transparency to these markets, that they need to be regulated. They do not yet regulate the over-the-counter derivatives marketplace, and I cannot point to a problem there, but I think enough problems have been in our markets that we should include the carbon markets in what Congress is moving forward in over-the-counter derivatives for sure. But I think transparency and to make sure that we bring it under market regulation, any centralized cash market, any centralized futures market, and also this over-the-counter market.

Senator LINCOLN. Will you continue to, I think, certainly re-emphasize the fact that what we have done in the past hear in similar situations has been on a much, much smaller scale when we talk about—you have mentioned the SO2 and the SOX and the NOX and what we have dealt with there. Do you think what we are dealing with here is too large to deal with, with this type of an approach?

Mr. GENSLER. No, I do not. I think it is just a larger scale. The size of it makes it even more incumbent upon us that we have an oversight function, that the price discovery function is free of manipulation, and that it is transparent; that a national registry, even if it is kept by EPA, is updated on a very regular, real-time basis—not at the end of the month, not at the end of the quarter, but it is really updated on a very regular basis and so forth.

Senator LINCOLN. Well, I have some real concerns about the volatility or the possible volatility in these new markets, carbon markets. And I guess the two questions I would have to you on that would be if you believe that the Waxman-Markey approach is the correct approach to helping prevent carbon markets from wildly fluctuating, what do we see in the possibility of the ramifications of that volatility, that possible volatility, particularly to consumers?

I know Senator Johanns brings up his turkey farmers. I have got a lot of poultry farmers and catfish farmers and others that exactly what happens, cattlemen as well, when the price of that feed goes up, they are out of business. And when they do, then the price of those products, those foods in the grocery stores go up. There is concern all around.

What about that volatility? Do you think the Waxman-Markey approach has enough in it to deal with that volatility? And how do you think that volatility could affect our consumers?

Mr. GENSLER. I think that as Congress tries to address itself to how to lower the emission of greenhouse gases, the trading piece of this, it is most important to make sure there is transparency. Like other markets, there will be some volatility, but the way one addresses that volatility is to make sure that people can hedge their risk for long periods of time, that they are not subject to the

whims of a current weather pattern or some weekly pattern and they can hedge it; they can see that national pricing, they are not subject just to some dark market; and that you have a strong regulator who is going to enforce manipulation standards and aggregate position limits as we seek to do in other markets.

But you are right, and both Senators are right. I mean, there will be some volatility in this marketplace, but I think transparency, anti-manipulation, a national market rather than smaller regional markets, and aggregate position limits are a part of the puzzle here.

Senator LINCOLN. Thank you.

Thank you, Mr. Chairman.

Chairman HARKIN. Thank you, Senator Lincoln.

Again, Chairman Gensler, thank you very much for your testimony and for your leadership at the Commodity Futures Trading Commission. I listened as intently as I could to a lot of the questions. Some of those were kind of policy questions and things like that, but we just need to have you keep in close contact with us on resources that are needed and how we structure the oversight and regulatory regime for this so that it functions well.

I leave you with where I started and, that is, my concerns again about speculation on derivatives and how that might artificially jack up the prices on these allowances and offsets and not in accordance with really what they should be worth. I asked that question at the beginning, and I still have concerns about it, but this would be an ongoing dialog and discussion, I am sure.

Mr. GENSLER. Thank you, Mr. Chairman, members of the Committee, and we are available to be of help at any time.

Chairman HARKIN. I appreciate it very much. Thank you very much, Chairman Gensler.

Mr. GENSLER. Thank you.

Chairman HARKIN. We will call our next panel up: Mr. Timothy Profeta, Director of the Nicholas Institute for Environmental Policy Solutions at Duke University; Mr. Joseph R. Glace, I believe—I hope I pronounced that right—Vice President for Risk Management and Chief Risk Officer, Exelon Corporation; Dr. Dave Miller, Chief Science Officer, AgraGate, and Research & Commodity Services Director for the Iowa Farm Bureau; and Ms. Julie Winkler, Managing Director, Research and Product Development, CME Group, and Member of the Board of Directors of the Green Exchange Venture.

Mr. Glace, did I pronounce your name correctly?

Mr. GLACE. Yes, sir.

Chairman HARKIN. OK, good.

Senator CASEY. Mr. Chairman, Mr. Glace also has Pennsylvania educational roots. Am I correct?

Mr. GLACE. Yes, sir.

Chairman HARKIN. What is this, Pennsylvania Day here? Or what is going on here?

Senator CASEY. We are just going to keep that commercial going. Thank you.

[Laughter.]

Chairman HARKIN. We have Pennsylvania on the next panel, too. Pennsylvania Day here.

Well, welcome to all of you again. You can tell from Mr. Gensler's testimony and our questions that there is a lot of interest in this Committee on how this is not only structured, but how it is regulated. This panel basically will continue our discussion on how we regulate carbon markets in a cap-and-trade system. Our next panel will be from the producer group perspectives, but I understand that a lot of this stuff flows back and forth, and we might get into some producer things also here on the regulatory panel.

As I said in the beginning, your statements will be made part of the record in their entirety. I would ask you to sum up in 6 minutes or less what your main point is so we can get to discussions with you on those points.

I would start first with Mr. Timothy Profeta, Director of the Nicholas Institute for Environmental Policy Solutions, and not a stranger here to the U.S. Senate.

STATEMENT OF TIMOTHY PROFETA, DIRECTOR, NICHOLAS INSTITUTE FOR ENVIRONMENTAL POLICY SOLUTIONS, DUKE UNIVERSITY, DURHAM, NORTH CAROLINA

Mr. PROFETA. Thank you, Mr. Chairman. Thank you, Mr. Chairman and Members of the Committee, for the opportunity to testify today. Right now I wish I went to school in Pennsylvania, but it is an honor to be here.

My testimony today is focused on the issues and concerns regarding the design of the carbon market. Given the financial market failures in recent years, however, it is understandable that a market approach should not be viewed as a foregone conclusion. However, I want to submit at the outset that, in our institute's evaluation of a number of policy options, the market remains the best means to achieve the environmental goals at the lowest cost.

Almost by definition, private actors with a market incentive will find a lower, less costly alternative to reduce greenhouse gas emissions than the Government could determine by fiat. And cost, in the end, is the determining factor. No sector is more aware of this than the agricultural sector. And as one more aside, let me note that the institute this week released a report co-authored by our colleagues at Texas A&M and Oregon State and EPRI to try and put an end to the "he said, she said" debate over agricultural impacts. At bottom, our study found that the net flow of greenhouse gas revenue and indirect commodity market revenues for farmers still outweighed the increased operating costs that we did see from the climate program.

Much of the market's cost-reducing benefits, however, could be weakened if the market does not operate transparently and efficiently. We know all too well that imperfect markets occur. Recent market failures provide a number of lessons, however, that you can apply to the creation of a new carbon market, including the importance of market transparency, vigilant regulators with adequate resources and jurisdiction, and effective risk management.

But before I recommend how these lessons should apply to the carbon market, let me first point out its uniqueness. Carbon will be unlike other commodity markets. It is an especially important point right now as the question of a carbon market is becoming complicated for fear that it will be a proxy for greater commodities

regulation. I would like to point out a few distinguishing aspects of the market.

First, unlike other commodities markets, the entire carbon market is created by the Government to achieve a societal goal. Demand for the product, and the product itself, is created by Government action, and thus the Government has a special duty to ensure that the market operates effectively.

Second, entities covered by the legislation will have no choice but to participate in the market, and it is a market with an ever reducing supply.

Third, the carbon market is likely to be driven heavily by derivatives, underscoring the need to design an appropriate regulatory structure. In particular, climate legislation will likely create a long-term, 38–year obligation for regulated entities, and these entities will need access to financial instruments to hedge their exposure through derivatives—a necessary element to securing investment for new, low-carbon-emitting energy technologies.

I would like to leave you today with four principles for an effective carbon market based on the lessons of the past decade: one, real-time transparency; two, adequate risk management and settlement; three, a vigilant and well-funded regulator; and, four, transparent data and strong quality controls on the allowances traded.

First, transparency. To the extent that instruments are traded on registered exchanges, the exchange member's activity will be "printed" on the exchange providing for the needed transparent information. If OTC transactions are to take place in the carbon market, the legislation will need to ensure that the regulator, market participants, and the general public have sufficient data to oversee and evaluate trading activity.

Finally, Congress will need to balance the public's access to timely market information with the legitimate concern that covered entities may need to protect their confidential business information. In addition to the information made available to the general public, regulators should have access to the full range of market activity in real time in order to prevent and punish market abuses, including fraud and manipulation. The obligation should lie with the market participant to provide the information to the regulator, not the other way around.

Current market participants also need to know that the allowance purchased on the spot, forward, and futures markets, which are held to maturity, will be delivered. In regulated financial markets, counterparty risk is generally managed by clearing the transactions. If the Committee wants to minimize the risk from counterparty failure, as much trading should occur on exchanges, or at least be cleared centrally, as is feasible.

Many will contend that clearing of long-term structural contracts will be difficult, as such transactions are unique and not liquid, and that parties will be required to post the collateral, or margin, necessary to participate in the market. These are non-trivial issues and pose a choice between mitigating systemic risk and creating the additional cost of posting margin.

It is important to note that market participants pay for the risk or risk management somehow, either through the posting of mar-

gin or through the pricing of OTC instruments. It will be your role to evaluate that tradeoff.

In the case that Congress provides exceptions to cleared or exchange-traded transactions, transparency for the counterparties and the regulator is even more important.

Access to market data should be coupled with sufficient resources to process and analyze the information, broad jurisdiction that allows the regulator to oversee any trading that involves allowance-based financial instruments, and appropriate enforcement authority. If Congress will ask the CFTC to take on the oversight of this new market, then more resources will be required to build the team of regulators needed.

Finally, the Government must ensure that the information regarding emissions is transparent, predictable and reliable. It must predictably produce information about the Nation's emissions to allow the market to evaluate the demand. A good example of an effective program has been the U.S. Acid Rain cap-and-trade program.

The Government also must provide the market with adequate assurances that the products traded in the carbon market are what they claim to be. With regard to the emissions allowances, the Government will create, serialize and track the Government-issued right to emit.

With regard to offset credits, however, the Government's role is to provide adequate protocols and procedures to ensure the market that any carbon offset project is real and verified.

The market is a powerful tool, by which environmental objectives may be achieved at historically low costs. Concerns about market abuses have, nonetheless, led some to conclude that now is not the time to create a new market. Let me posit that the exact opposite is true. If you choose to create a market, now is the best time to create a transparent, effective market that prevents excessive speculation and manipulation. The lessons are clear, and the public is attuned to the needs. If it wants to do so, Congress has the tools it needs to create a well-functioning marketplace.

Thank you, Mr. Chairman. I look forward to your questions.

[The prepared statement of Mr. Profeta can be found on page 106 in the appendix.]

Chairman HARKIN. Thank you, Mr. Profeta.

Now we will turn to Joseph Glace, Vice President for Risk Management, Exelon Corporation. Welcome, Mr. Glace.

STATEMENT OF JOSEPH R. GLACE, VICE PRESIDENT FOR RISK MANAGEMENT AND CHIEF RISK OFFICER, EXELON CORPORATION, CHICAGO, ILLINOIS

Mr. GLACE. Good morning and thank you for inviting me to testify this morning. It is truly an honor to be here today.

My name is Joe Glace, Vice President and Chief Risk Officer of Exelon Corporation. Exelon is a public utility holding company headquartered in Chicago. Our local retail distribution utilities, ComEd and PECO, serve 5.4 million customers, or about 12 million people—more than any other company in the United States. We have fossil, hydro, nuclear, and renewable generation facilities. Our nuclear fleet is the largest in the Nation and the third largest in

the world. I have worked in the energy field for over 29 years. At Exelon, I am responsible for leading the risk management function, including the identification, assessment, and monitoring of market, credit, and operational risks.

In my testimony today I would like to highlight the following: Exelon's support for comprehensive climate legislation; Exelon's opposition to requiring all trading, derivatives, and hedging activities to be conducted on exchanges; Exelon's support for expanding the CFTC's jurisdiction to the new market for carbon allowances, including the over-the-counter market; and Exelon's support for the reporting requirements for OTC transactions in the carbon markets.

Exelon was an early and vocal advocate of climate change legislation. Our CEO, John Rowe, first testified in favor of addressing climate change by means of a carbon tax in 1992. We are pleased that the House has passed a comprehensive climate and energy bill and look forward to working with the Committee and the Senate to pass comprehensive, cap-and-trade legislation this year.

Exelon supports a bill with realistic targets and an effective cost containment mechanism, such as a cost collar, and allocating allowances to regulated local utilities with a requirement that the value represented by those allowances be used to provide benefits to customers.

I think it is important to explain briefly Exelon's overall approach to commodities trading. We are not speculators. We use commodities trading primarily to reduce price risk from spot market power prices. Our business model is to lock in, or hedge, the price we are paid for the electricity we generate.

We do this by buying and selling energy products in the markets that are available. For example, we might sell electricity at an agreed-to price for all hours in the summer months of June through September. We also might transact in the over-the-counter market for coal to lock in our fuel cost.

Our customers benefit from this hedging and trading activity. We are in a position to agree to longer-term power sales contracts with both wholesale and retail customers. It is our experience that retail customers, in particular, want stable power prices. Without hedging and trading, that simply would not be possible.

One of the principal concerns many have expressed with adopting a carbon control regime is how it will affect our fragile economy. Simply put, a properly regulated, robust trading program, plus liquid trading markets, will help control the overall cost of the program.

It is important to view the issues before this Committee from the customer's perspective. What steps should the Congress take to regulate carbon trading emissions without imposing undue costs on consumers? Our strongly held view is that any regulatory reform of the commodities markets should ensure that the products which we use to hedge our risks remain available to us and at a cost that is comparable to the costs we face today. We believe it would be a mistake to force most, if not all, derivative hedging activities to exchange-traded platforms.

Today, a substantial component of our derivatives hedging program is in the OTC market without clearing. Transacting on ex-

changes is much more expensive than in the over-the-counter markets because it requires posting of substantial amounts of cash as collateral. This is one reason we do not—in fact, cannot—conduct all of our hedging activity on exchanges. Moving all our hedging to exchanges would require substantially larger cash outlays. This in turn would mean our customers would have to pay substantially more for electricity.

Another drawback of limiting hedging activity to exchanges is that these entities only offer a standardized set of products. Exelon often enters into customized transactions that mitigate the particular risk we are trying to hedge than would one of the exchange-traded standard products. To draw the obvious conclusion, power prices will be higher, meaning consumers will ultimately pay more than they would otherwise, if companies like Exelon are forced to do all of their hedging on exchanges.

I will now turn to the question at hand: what to do about the coming market for carbon emissions allowances. The cost of carbon allowances will be a cost of doing business for generators. It will be just like the cost of natural gas, oil, or coal—an input that is necessary to enable us to make and sell our product. Exelon will need to hedge the price risk associated with that product. Exelon will want to have both exchange-traded and over-the-counter offerings that now exist to manage these risks.

We recognize, however, that there is a need for fair and balanced regulation. No one wants another crisis that could pose systemic risk, or a market structure with continuing regulatory gaps. That is why we support the expansion of the CFTC's jurisdiction to the new market for carbon allowances, including the over-the-counter market. This should allay any concern that any trader could artificially drive prices up.

The Commodity Exchange Act already contains strong anti-manipulation provisions that should be made applicable to the OTC markets and perhaps revised and refined to ensure that they provide to the CFTC the tools it needs to prevent manipulation.

For the same reason, Exelon also supports the adoption of new reporting requirements for OTC transactions in the market for carbon allowances. The CFTC has to have access to information about transactions to enable it to fulfill its regulatory oversight and enforcement function. Also, the obligation to report, as such, will be a powerful deterrent to would-be manipulators.

I appreciate the Committee's invitation to testify today. This is a complicated subject area. I hope that I have provided you with a sense of why it is important to ensure that there is effective oversight of the emerging carbon markets while at the same time guarding against over-regulation that would result in higher costs for companies like Exelon and in turn for our customers.

I would be pleased to answer any questions you may have this morning. Thank you.

[The prepared statement of Mr. Glace can be found on page 81 in the appendix.]

Chairman HARKIN. Thank you very much, Mr. Glace.

Now we will turn to Mr. Dave Miller, Chief Science Officer for AgraGate, and Iowa Farm Bureau. Welcome, Dr. Miller.

STATEMENT OF DAVID MILLER, CHIEF SCIENCE OFFICER, AGRAGATE, AND RESEARCH & COMMODITY SERVICES DIRECTOR, IOWA FARM BUREAU FEDERATION, WEST DES MOINES, IOWA

Mr. MILLER. Thank you very much for this opportunity to discuss issues regarding market structure and market performance as it pertains to carbon markets. My name is David Miller, and in addition to the activities and services working with the Iowa Farm Bureau and AgraGate, I also farm. On our 400–acre farm in southern Iowa, we converted to continuous no-till in order to qualify to earn carbon credits under CCX rules. I am one of thousands of U.S. farmers who work more than 16 million acres that have been paid for providing environmental services through the CCX enrollment and carbon services. While I have served for over 6 years on various governing committees at CCX, I am speaking today on behalf of AgraGate and the Iowa Farm Bureau.

Occasionally, we have been asked why all of the credit registrations we have done through AgraGate have been on the Chicago Climate Exchange, and the simple answer is that the CCX has the only protocols that are workable for production agriculture and private forestry. Market design and structure matter and are critical to market performance. Some of the items that I would like to discuss today include market transparency, offset protocol standards, and the critical need for fungibility of compliance offsets. And I apologize to the Committee for getting down into the weeds on some of these things, but as a farmer, I know if I do not take care of the weeds, there is no crop.

Market transparency is critical to smooth operation of a carbon market. Transparency means that not only must there be a clear enumeration of what criteria are used to define offsets, but that there must be a mechanism in place so that prices—bids, offers, and sales transactions—are publicly reported and readily available. The only market in the offset market that currently offers that transparency is the Chicago Climate Exchange. Unfortunately, that pricing transparency has been sharply curtailed. Under the provisions of H.R. 2454, there is language that suggests that domestic offsets from current registries may be exchanged or recognized in the Federal regulatory program, but not allowances or international offsets. This has resulted in all offset transactions moving to the bilateral, privately negotiated trades where the buyer can be assured that they will receive offsets rather than the other compliance instrument as might be the case on the electronic platform.

To improve transparency, CCX rules have been updated to require that all these privately negotiated trades be reported. But the bid-ask spread has widened significantly, and the market has fragmented. This has increased the transaction costs associated with carbon marketing and has reduced the net returns to the actual offset providers.

Regulatory uncertainty is now harming the thousands of farmers and companies who have taken the lead in building these rules-based carbon markets, and it is extremely important that we provide a smooth transition for those who are making emissions reductions today in CCX and other verified programs.

With regard to fungibility, the fungibility of compliance offsets is extremely important, where a registered offset credit equals a registered offset credit regardless of the source of the credit. It is a market design characteristic that is essential if the transaction costs of the carbon market are to be minimized.

"Term Credits," as delineated in H.R. 2454, are not fungible compliance instruments. They only delay compliance obligations. They do not satisfy them. They are an inferior product, and based on the experience of temporary credits under the European trading system, they will have little or no value. It is extremely problematic that H.R. 2454 has relegated all soil sequestration offsets, by design, to the class of term credits. It is neither necessary nor desirable from a market design perspective to address the issue of permanence in this manner.

Design criteria for offset protocols can make or break the viability of agricultural and forestry offsets as real tools in the efforts to reduce atmospheric carbon. To be viable, offsets must be designed for "working lands." And to be a workable part of the solution, the carbon offset protocols must work within the framework of existing agricultural markets. Length of contract matters. In Iowa, more than 60 percent of the farmland is rented by the operator with the vast majority of that land on 1–year renewable leases. In our experience of working with farmers on carbon offsets, the No. 1 reason why a farmer would not participate in a carbon offset program is the length of contract.

We have looked at the proposed protocols of other registries. Some of these protocols have single-term length commitments anywhere from 20 years to 199 years. Our experience is that farmers and private forestry landowners are very reluctant to sign contracts that extend that long.

Generalized quantification methodologies are a very effective and low-cost way to quantify soil sequestration offsets. But do not be fooled by the "illusion of accuracy" that some would say exists when credits are granted based uponsite-specific soil sampling. And there is more in my statement about that, but for time, I will leave that to the written.

I would like to address some of the market regulatory framework. As is being demonstrated by the early action programs, carbon can and is becoming a commodity that can and will be traded just like other commodities. The experience of the Chicago Climate Exchange is proving that markets for carbon can and do work. The actual registry and retirement of allowances and offsets should be done on regulated, open, transparent markets with specific standards for price reporting that include date of transaction, vintage, quantity, and price information.

The CFTC should continue in its role as the regulator of derivatives, futures, and options contracts associated with carbon trading, and Farm Bureau opposes the efforts to combine CFTC and the Securities and Exchange Commission and supports regulation of the commodity futures business by CFTC. Derivatives, futures, and options on carbon contracts are not fundamentally different than other derivatives, futures, or other markets. The oversight provided by the CFTC can be adequate for those markets.

In my written testimony, I also talk about some of the capital and margin requirements. Leverage is important, and I think we need to pay attention to those.

I would finish by saying that USDA has a distinct and unique role as part of the administration of offsets, and that is a unique part of also the regulatory structure.

I thank you for the opportunity to be a part of this, and I stand ready for any questions.

[The prepared statement of Mr. Miller can be found on page 90 in the appendix.]

Chairman HARKIN. Dr. Miller, thank you very much for your statement, both here and the written statement.

Now Ms. Julie Winkler, Managing Director, Research and Product Development for the CME Group, and member of the Board of Directors of the Green Exchange Venture, and since everybody is bragging about Pennsylvania, I am told you really came from Waterloo, Iowa. I want to state that for the record.

Ms. WINKLER. That is correct.

Chairman HARKIN. Thank you. Ms. Winkler, please proceed.

STATEMENT OF JULIE WINKLER, MANAGING DIRECTOR, RESEARCH AND PRODUCT DEVELOPMENT, CME GROUP, AND MEMBER, BOARD OF DIRECTORS, GREEN EXCHANGE VENTURE, CHICAGO, ILLINOIS

Ms. WINKLER. Mr. Chairman, members of the Committee, I am Julie Winkler, Managing Director of Research and Product Development of CME Group Inc. and a member of the Board of Directors of the Green Exchange LLC. Thank you for the opportunity to appear before the Committee today and provide our views regarding the regulation of a U.S. carbon market.

The Green Exchange Venture believes that cap-and-trade is the preferred solution for guaranteeing emissions reductions at the lowest possible cost to the economy. In order for the promise of a cap-and-trade program to be met, it must be built on certain design principles.

First, we strongly support providing compliance entities with a choice of utilizing exchange-traded derivatives and OTC instruments to meet their environmental obligations. Also, in order to provide these customers with effective risk management tools and liquidity, the U.S. carbon markets must allow for broad market participation. We further believe that the Commodity Futures Trading Commission is best suited as the regulator of the U.S. carbon marketplace. Last, to ensure the creation of a transparent U.S. carbon market with the necessary liquidity and price discovery they provide, regulatory proposals should not include a transaction tax.

CME Group is one of six founding members of the Green Exchange Venture, which is currently comprised of 13 partner firms from the energy, environment, and financial sectors. CME Group currently provides the electronic trading platform, central counterparty clearing services, and other exchange services. Our partners are currently major participants in the European carbon markets as well as regional environmental markets.

We strongly believe that a cap-and-trade program offers the best opportunity to minimize the cost of mandatory reductions in greenhouse gas emissions. Emissions trading systems are already operating or planned in over 35 countries, and they have proven that cap-and-trade programs can successfully cut emissions with efficiency and cost-effectiveness.

There are several design features that are critical to a well-functioning cap-and-trade system and related derivatives markets. Based on our extensive market development experience, we strongly believe that a cap-and-trade system must include participation beyond compliance entities.

Futures markets perform two essential functions: they create a transparent venue for price discovery, and they permit low-cost hedging of risk. And to be effective, futures markets depend on a broad universe of market participants with both short-and long-term expectations to make markets and provide liquidity.

We also believe that imposed price floors or ceilings should be avoided if a carbon market is to create meaningful price discovery. Price caps reflect factors extraneous to the fundamental factors that drive prices and, thus, are not connected to actual supply and demand.

While it may seem that artificially constraining prices with a ceiling will reduce price volatility or market manipulation, the opposite is likely to result.

We fully understand the motivation to protect American consumers from dramatic increases in the cost of carbon. However, we believe this can be facilitated through strong market oversight and not through price floors and ceilings.

By offering electronic trading of exchange-traded carbon derivatives, coupled with a comprehensive clearing solution, we will enhance price discovery, contribute significantly to liquidity, and reduce risk and uncertainty for market participants. CME Clearing is one of the largest central counterparty clearing services in the world and has provided clearing services for the futures industry for over a century without a single customer default.

Electronic trading and clearing solutions also provide a trustworthy and timely audit trail to effectively identify anyone who engages in misconduct. We believe that because of the CFTC's established expertise and coordination with the global derivatives industry, it is in the best position to provide strong regulatory oversight to the carbon markets.

We applaud the efforts of this Committee and the administration to ensure that a mandatory U.S. cap-and-trade program will enhance transparency, integrity, efficiency, and fairness in the markets. As beneficial as exchanges and clearinghouses will be in a U.S. carbon market, they will not meet all the needs of customers. Although the Green Exchange Venture and other emissions trading platforms would likely be the presumed beneficiaries if all transactions were required to be executed on electronic trading platforms, we do not believe this would be in the best interest of a U.S. cap-and-trade program.

Exchange-traded and OTC derivatives markets are essential to the efficient functioning of a U.S. carbon market. Together, these markets can provide compliance entities with the ability to increase

their certainty in their future cash-flows by protecting against price risk and effectively managing their capital, thereby increasing their ability to meet compliance obligations at the lowest possible cost.

The OTC market is complementary to standardized exchange-traded products by providing products customized to a regulated entity's emissions and their time horizon. While some types of customized transactions must be conducted OTC, the remainder of carbon transactions that we envision will likely lend themselves to exchange-traded products.

While OTC transactions should be present for a cap-and-trade program to be fully successful, the OTC carbon market must provide a greater level of transparency than what is currently present in other OTC markets. As part of its special call reporting, the CFTC already requires extensive reporting of OTC commodity derivative positions. This reporting framework can be leveraged and extended to include new carbon derivatives. Entities such as the Green Exchange Venture will provide capped entities and other market participants with the venue to safely and securely manage their carbon price risks.

Regulated exchanges, clearing solutions, and the CFTC will ensure a high level of transparency to the U.S. carbon markets. This strong regulatory structure combined with added transparency in the OTC market will enable compliance entities to meet their environmental obligations and allow agricultural and forestry offset developers to fully participate in a well-functioning U.S. carbon market.

I appreciate this opportunity to offer these comments to the Committee and will be pleased to respond to any questions.

[The prepared statement of Ms. Winkler can be found on page 121 in the appendix.]

Chairman HARKIN. Thank you very much, Ms. Winkler, for your testimony. Thank you to our entire panel.

Mr. Profeta, are there any reasons why the success of a cap-and-trade approach in reducing sulfur dioxide emissions under the Clean Air Act cannot be replicated here for reducing greenhouse gas emissions? What have we learned from the European market? And why can't we just replicate that here? Is that something that we could do?

Mr. PROFETA. Well, Mr. Chairman, I think the first foremost lesson is yes, both of those experiences have taught us that the market does work. The acid rain trading program somewhat famously came in at about 20 to 30 percent of the cost estimated, what was estimated when the legislation was passed. We found in the EU that the market works as well.

There are distinctions here in terms of this greenhouse gas market that might be created by Congress and those markets that have—I think the universal opinion on this panel would be that there might be greater oversight and need a comprehensive regulatory program at the outset.

The acid rain program is a different scope and scale and not nearly as driven, likely to be driven to the derivatives as this long-term market would. And the EU market as well, the cost was somewhat mitigated by some of the distinctive features in the EU market and has actually started to gravitate toward exchanges.

Now about 50 percent are on an exchange, and, of course, the EU market also, being short term, does not have the long-term requirement of the emitters that this would have.

So both those teach us a lesson that the markets can work and also there can be distinguishes not in need of regulatory oversight as this one.

Chairman HARKIN. I also want to note that in your written testimony, you mentioned as an aside the study that was co-authored by several leading agricultural economists. You said it found that "the net flow of greenhouse gas revenue and indirect commodity market revenues for farmers far outweigh the increased operating costs." It says "benefits to crop and livestock producers far outweigh these economic losses"—to consumers and agricultural processors—"signaling gains to the sector as a whole. If done the right way, agriculture can be made a winner in climate legislation."

I assume, though, that there are some sectors within agriculture that will do better than others. Is that right?

Mr. PROFETA. Absolutely true. There will be ebbs and flows in the system, and some sectors and some farmers will do better than others. I think in general we have found there were higher input costs but higher output costs as well, a modest consumer response, increased bioenergy supply, and offset income opportunities. And the key feature, the main benefit to the farmers that really come through in these modeling runs come through indirect commodity market shifts that drive up crop prices and revenues. So that is not seen in some of the other studies, and I should note that in doing that we reached out to our colleagues at places like Texas A&M and Oregon State to try and bring together a team that could get after the "he said, she said" that has been happening in terms of the agricultural economics of climate.

Chairman HARKIN. Mr. Glace, do you believe a price collar a floor and ceiling would bring about desired certainty in terms of controlling risks and volatility? How do you feel generally about a price collar?

Mr. GLACE. Exelon advocates the use of a price collar. The main reason is to protect customers from higher prices in the early transition period for this program, if you will. We think that it is very important to protect customers from being impacted by higher prices, and we think that is the primary use of the collar. In any risk management situation, if you are afraid of volatility and uncertainty, it is nice to have options. Collars and floors help band in some of the risk, and these are the tools in the bag that we all use routinely to manage risks.

Chairman HARKIN. I want to turn now to Dr. Miller and Ms. Winkler. I have only got a minute left here, but back to the issue of derivatives and swaps and the over-the-counter market, Ms. Winkler is basically praising and is in favor of that. Dr. Miller, you raised some questions about it.

As I understand, Ms. Winkler, you are saying that we need this to get financing for offset projects. Well, that may be one way, but aren't there other ways such as forward contracting, traditional bank lending, or guaranteed USDA loans that could also ensure offset projects get financed rather than just through a derivatives?

I am concerned about this view that we must have customization, especially when compliance obligations are measured in standard government-issued allowances due each April 1st. Given that do we really need customization? I am still searching for that answer. Ms. Winkler?

Ms. WINKLER. Yes, Chairman, I think the best example would be my fellow panelist Joe Glace talking about the needs for him to have the flexibility to have both customized transactions in the over-the-counter market in addition to the standardized exchange-traded products that he uses. So while financing is certainly one reason why people would use over-the-counter instruments, it is not the only reason. You know, some of the other things is that it can help an emitter specify the actual emissions that they are offsetting against and hedging against, and also being able to customize it to the time horizon that they are most concerned about.

Also, as Joe pointed out, you know, for some entities it becomes more difficult to be able to post that collateral with the exchange in terms of the margin requirements, and with the role of an exchange and a clearinghouse, we are providing mark-to-market and settlement values on a daily basis, which could at times, with price movements, require substantial dollars to be moved in and out of the clearinghouse.

Chairman HARKIN. Dr. Miller, do you have any observations? My time is——

Mr. MILLER. Yes, I think one of the great issues is transparency of the over-the-counter market, and you can gather and get additional transparency with reporting. We do reporting of the cash grain markets. We do not report every individual transaction, and we do not report who was at the transactions, but we do report the prices and we do report where those things were happening. And that gives sufficient transparency to that system that it functions well, and that is partly what is missing in the current over-the-counter markets.

Chairman HARKIN. Got it. Thank you.

Senator Chambliss?

Senator CHAMBLISS. So, Dr. Miller, if we went to a system where there was complete transparency and the reporting of those contracts that were traded over the counter, would that address the concerns that you have about OTC?

Mr. MILLER. To a large degree, I think it would, particularly as it would apply to the compliance instrument itself. The actual offsets or allowances are going to be registered products that are standard products because they are a compliance instrument. And right now in the voluntary market, the only exchange that is doing broad-based price reporting is Chicago. The other exchanges, I went out and looked, and I cannot find reported prices for the Climate Action Registry. I cannot find reported prices. I can for the futures markets that are regulated, but for the spot markets on a number of these other projects and CDM projects, there is no price reporting. There is no transparency.

The associated issue that is connected with that, though, is leverage, and one of the problems that was part of the debacle, if we would say, that occurred in the financial markets with regard to credit default swaps, et cetera, was not only a transparency issue

but a leverage issue. And, yes, there is cost to doing margining and things on exchanges, but the exchanges did not have any defaults, the exchanges did not have those problems because there were limits to the amount of leverage that could be put to those type of derivatives.

Senator CHAMBLISS. Well, Ms. Winkler, if we develop a system that requires transparency of all trades, whether they are standardized trades or whether they are more tailored transactions, which I assume we could devise some system to do that, would that interrupt the market in any way, in your opinion?

Ms. WINKLER. Senator, we are very much in support of full transparency of the marketplace, and, you know, our goal as operating an exchange and a clearinghouse is being able to serve as the price discovery vehicle for what carbon is in the U.S. And I believe through our existing infrastructure and also the audit trail that our electronic trading system and our clearing system can provide, in the close coordination we have with the CFTC, we are going to be able to easily accommodate that additional transparency that is going to be needed.

Senator CHAMBLISS. Mr. Glace, would your ability to enter into financially settled swaps for electricity such as the example outlined in your testimony be hindered or become more expensive under the recent proposal put forward by the administration for regulating over-the-counter derivatives?

Mr. GLACE. Yes, sir. We believe that, again, a lot of the forcing to organize the exchanges would seriously reduce the amount of hedging that would be able to be done in the marketplace because of the fact of all the initial cash that has to be put up to support the transactions.

Senator CHAMBLISS. And who is going to pay for that ultimately?

Mr. GLACE. Ultimately, consumers pay for this additional—any additional cost that enters the system ultimately finds its way into the price to the consumer.

Senator CHAMBLISS. Yes. Well, in talking about the transparency issue, which I think is going to be the focus of the debate when we get to this financial system overhaul issue, I assume you have no issue with transparency.

Mr. GLACE. No, sir.

Senator CHAMBLISS. You are not trying to hide anything or do any secret deal out there. So is there a way, in your mind, that we could develop a system that would provide full transparency and allow you to operate in the market with tailored transactions like you sometimes do today?

Mr. GLACE. Absolutely. Exelon supports expanding the CFTC's jurisdiction and expanding the CFTC's ability to gather reporting and transactional information to assess positions. And we believe in rigorous oversight in the markets and full transparency.

Senator CHAMBLISS. Mr. Profeta, let me ask you to comment on that same question. You encourage, obviously, the clearing of all transactions "as is feasible," I think is the way you put it in your testimony. I think that has been stated an awful lot and with different wording by different experts in this field. But is there a way to take tailored transactions, in your opinion, and whether you call

them standardized or not, effect total transparency in the marketplace?

Mr. PROFETA. I think the most important thing is to make it transparent to the regulator, and I think it is possible to do that in much the way my co-panelists have described here. The best way to control for the risk is to build it into the system so you do not get to the point where to regulate it is to see it. But there are distinct, long-term structured deals that it appears cannot be standardized and put—cleared. And if it is open and apparent to the regulator, I think we can control for a lot of the risk that way.

Senator CHAMBLISS. What do you think would be the biggest hurdle in having a tailored product transparent to the regulator? Or is there a hurdle out there?

Mr. PROFETA. I think it is just a matter of establishing the correct authority for the regulator to receive that information. As I suggested in my testimony, it may be appropriate to put the obligation on the transacting parties to give the information to the regulator rather than putting the obligation on the regulator to make sure that the data gets to the CFTC.

Senator CHAMBLISS. Mr. Chairman, I know I am over my time, but let me follow up. Mr. Glace, is there a problem from your standpoint as a participant in these contracts in the marketplace in providing the regulator with full disclosure of what the transaction that you have entered into from the hedge standpoint is all about?

Mr. GLACE. No, sir. Full disclosure is not a problem.

Senator CHAMBLISS. OK. Thank you.

Chairman HARKIN. Thank you, Senator Chambliss.

Let us see now. Senator Johanns?

Senator JOHANNS. Mr. Profeta, let me get started with you. I think in response to some questions, you have acknowledged that for farmers there is going to be higher input costs, and I think virtually every study shows that. Is that something we agree upon, input costs will go up?

Mr. PROFETA. Yes, input costs will go up. Fertilizer costs may be controlled by provisions to help that industry, but input costs will go up, yes.

Senator JOHANNS. And I think the fertilizer business would debate you on that one. They seem to believe their costs are going to go up also.

Mr. PROFETA. I have said the word "may" cautiously because I have no idea what the Senate's policy will be on that and how it will be affecting the industry. But there are efforts at least to try and hold that sector of the industry harmless.

Senator JOHANNS. Now, as I understand the Texas A&M study—and, again, by inference from your testimony, it appears that you are reaching much the same conclusion—it is not the credits or allowances or whatever that is really going to help the farmer out to deal with those input costs. It is your belief that they will get a higher price for their products, right?

Mr. PROFETA. Yes. This is the study that we released. I am happy to bring the authors who are intimately familiar with it to meet with you, Senator. But, yes, their findings were that the key benefit to the farmers comes from the indirect commodity market

shifts that drive up the crop prices and their revenues. They do have some benefits from the offsets, from tillage practices, manure management, et cetera, but that is not the driver. The driver is the crop price.

Senator JOHANNS. Now, if you are on the buying end of that, though, if you are in the dairy industry—which is absolutely going broke at the moment, if you are in the pork industry and one pork producer said to me recently, he said, "Mike, we are 30 days from being bankrupt." If you are in the cattle industry that has not made money for 2 years, this is pretty much a disaster for them, isn't it?

Mr. PROFETA. I would like to go through the numbers with you. I do not think that the input cost projections that came out of the study are in the realm of disaster, particularly compared to the fluctuations we have had in those input costs in the past year. They far exceed what would be projected out of this legislation.

Senator JOHANNS. Well, if you are the one going broke—and, believe me, dairy is not making any money at the moment, quite the opposite. Pork is really getting hammered. Beef has not been good for a couple of years. Call it what you want. This is not a good situation.

Mr. PROFETA. Senator, I would agree, and let me be clear. The intent of the study was try and get after, you know, the assumptions and lay them there and let you as a Senator to make a judgment as to—I am from the State of North Carolina. I work with the pork industry a lot. I know how they are suffering. And I am certainly not advocating for any legislation that would cause the kind of pain that you feel.

I think there are ways to balance these societal objectives, not hurting the industry and also addressing climate change, and what we are trying to do is give you the data that helps you get to that place.

Senator JOHANNS. Now, let me, if I might, kind of pivot off of your comments to Mr. Glace. Mr. Glace, you are, as I have described, a big guy—not in stature. In business is what I am referring to. How big are you? What would your revenues be in a year?

Mr. GLACE. Approximately $15 billion.

Senator JOHANNS. $15 billion. Now, if we do something up here that impacts your bottom line, you are just going to pass it on to the consumer, right? You are not going to go broke.

Mr. GLACE. Exelon believes that all costs to manufacture and inputs to make electricity ultimately get into the power price, and that does, in fact, get to the consumer.

Senator JOHANNS. Yes. And if you are the irrigator and you are buying electricity, they are going to pay more, right?

Mr. GLACE. Yes, sir.

Senator JOHANNS. One of the concerns I had with the study, the Texas A&M study, is the two farms they looked at in Nebraska were dryland, and about 60 percent of our row crops are actually irrigated. So those irrigators are going to pay more for electricity if, in fact, the Government raises the cost of doing business.

Mr. GLACE. We believe that power prices will increase, yes.

Senator JOHANNS. Now, you can hedge your risk just simply because you are going to notify somebody in an electric bill that they

are paying more. But where the farmer does not set the price, how do they possibly compete with you? I mean, you are such a big enterprise. You can control your prices. The poor farmer out there just is going to get what they get, and if it causes them to go broke, they will go broke, won't they?

Mr. GLACE. Again, I cannot speak for the farmers' economics very specifically, but we do believe that all—Exelon believes in markets, and markets set prices. And whatever the buildup of the ultimate market inputs are that determine the market price, the market clears and the market sets a price. And Exelon believes that markets produce the least efficient—the most efficient, excuse me, possible outcome for the consumer, and that a market-based solution is always going to be the least cost or most effective solution.

Senator JOHANNS. See, here is the problem with that in agriculture. The fat cattle guy cannot go to Tyson's and say, "Boy, you know, I just got a higher electric bill, and I got this and I got that. Instead of selling these fat cattle for $100, I need $110." Because you know what? Tyson's is going to go, "So what?" I mean, it is the reality of the marketplace for farmers. Do you agree with me there?

Mr. GLACE. I do not pretend to know the farmer realities and the farmer marketplaces, but I do know that if a market sets a price for clearing that the farmer will get a bill that is commensurate with that market price.

Senator JOHANNS. They cannot pass it along.

Mr. GLACE. I will take your word for it.

Senator JOHANNS. Yes. Well, that is the way it works.

Mr. GLACE. Absolutely.

Senator JOHANNS. Thank you.

Mr. GLACE. Thank you, sir.

Chairman HARKIN. Thank you very much, Senator.

Now Senator Gillibrand.

Senator GILLIBRAND. Thank you, Mr. Chairman. I want to go over some of the issues that Ms. Winkler raised and some of the questions that you asked, Mr. Chairman.

One of the issues was about why do we need a customized market, and there were a couple of areas that I wanted you to perhaps provide—anyone on the panel who has information and wants to provide more detail, that would be helpful.

On the question of whether it will provide offset projects financed under the bill, will be able to provide the financing, one of the reasons is that financing for projects is often contingent on a firm being able to predict their future carbon risk through a derivative contract, for example, and if you just have exchange-traded, you have no more than 5–year-out contract.

So could you please elaborate more on that financing perspective, because the Chairman brought up, well, why can't you just get a loan? What is the difference with that access to capital, then the liquidity that the derivatives market would provide, if any, to further answer that question?

Ms. WINKLER. Thank you, Senator. One of the main differences is just because of the customized nature of that instrument and the financing needs for those particular projects that need to be developed. It is in their best interest to be able to deal with a

counterparty that is able to, you know, lend to them and also that they are able to contribute toward the financing of that the physical assets that they have. And in the cases of many of these project developers, these projects take anywhere from 7 to 10 years and, especially in terms of the offset projects, need to be verified and approved along the way. So there is a substantial amount of risk that is outstanding. A typical lender is going to find that pretty difficult to be able to stand behind that at a reasonable rate.

Senator GILLIBRAND. So you are saying that the lending market may not be readily available because of the outstanding risk, and so that you really need a derivative to hedge that risk specifically for the amount of time that that project may well take to come to fruition.

Ms. WINKLER. That is correct.

Senator GILLIBRAND. Now, is that your experience, Mr. Glace?

Mr. GLACE. Yes.

Senator GILLIBRAND. OK. Second, you said in your testimony, Ms. Winkler, that if you were going to have—if you were not going to have a customized market, it would leave out certain players who need access to these markets because of the capital requirements. But one of the things we talked about earlier that the Ranking Member brought up was that we would actually want capital requirements. And, in fact, not only do we want complete transparency for what the trade is going to be, but that we actually might even have higher capital requirements because of the increased risk. So that does not address your—that would undermine your argument that certain players would, therefore, be excluded from the market.

Ms. WINKLER. I think the way to describe it is that an exchange-traded market, we believe, relies on broad market participation, and that is kind of central to being able to have the market determine what that carbon price is going to be.

There are many differences in terms of the over-the-counter market and the level of sophistication of the people that interact in that market, and typically they are eligible contract market participants. And so I think there are pretty significant differences just between who we would anticipate dealing in that customized market versus what we would expect in the exchange-traded market. And it is certainly our hope and our intention that both markets have to have increased transparency over what they have today.

Senator GILLIBRAND. And capital requirements. I want to get to your argument that you thought the reason why we needed to have an OTC market was because there would be no capital requirements. And what I think the Ranking Member was getting at is if we create this over-the-counter market and allow for it, it is going to need increased transparency and significant capital requirements, which would undermine your argument.

Ms. WINKLER. The capital requirements is certainly something that is under review by the administration as part of their larger over-the-counter and financial regulatory reform. So we would view that anything that would need to be done in carbon over-the-counter ets would be in line with those broader goals of the administration.

Senator GILLIBRAND. And then the third issue that addresses this is the question of foreign carbon allowances to be purchased and used for domestic appliance. It is allowed in the Waxman-Markey bill right now. However, the issue of mandated standardization and exchange trading is impacted because 75 percent of the European market right now is over the counter. So how do you see that impacting the harmonization efforts that we are trying to make and participation—if the EU, for example, has a 75–percent over-the-counter market and the U.S. has none, how will that affect us in terms of competitiveness or access to capital or liquidity or volatility or any of the issues that you brought up?

Ms. WINKLER. I think the biggest concern, Senator, is that if there is not an over-the-counter market that is allowed in the U.S., we believe that that activity is going to take place——

Senator GILLIBRAND. Go overseas.

Ms. WINKLER [continuing]. And it is going to go overseas to less transparent environments and areas where our regulators do not have as direct authority as they do here in the United States. While we certainly still see, you know, some transactions taking place in the over-the-counter market, we have been seeing a trend in the EU ETS toward clearing. And that has been a positive trend, and it kind of speaks to how over-the-counter markets develop over time, and they do become more standardized, they do become more liquid. And now kind of the predominant number of the instruments are being cleared, and we would view that being as much of the same development that we will see here in the U.S. But our primary concern is that if we do not allow over-the-counter transactions, people are going to need those customized tools, and they are going to lend themselves to less transparent environments that we do not have the authority to regulate properly.

Senator GILLIBRAND. Thank you.

Chairman HARKIN. Thanks, Senator Gillibrand.

Senator Lugar?

Senator LUGAR. Thank you, Mr. Chairman.

In our last comprehensive hearing on this subject, the testimony of Secretary Vilsack was that all farms would benefit from a cap-and-trade situation similar to the House bill. Senator Chambliss, in releasing the Texas A&M study, which has been cited several times in the hearing, indicated that 71 farms would not prosper, 27 would, and so that is quite a disparity. And the reasons were varied, but the farms that came out best were farms such as my farm in Indiana that produces corn and soybeans.

I take the privilege of these personal references because I want to ask you, Dr. Miller, about a situation on my farm or maybe at yours. We have about a third of our acreage in corn, a third in soybeans, and a third in trees. About 22 years ago, my son and I started planting black walnuts in rows, some other trees subsequently, and in due course, the Chicago Climate Exchange approached us and said, "Would you like to be a partner in this exchange?" They wanted some farm in Indiana at least to have that situation going, but they could measure only most recently planted trees because the idea was that if you have trees already on the farm, why, those were already there. The incentive was to plant more.

So, as a result, they measured some of our trees, and I have been accumulating credits. I go to the website of CCX and find that I have no several thousand tons of carbon sequestered in those trees on the farm.

My problem is that the price of that carbon per ton has been plunging. It was as high one time as $7 a ton. It is now 25 cents a ton as you go to the website today.

Now, there is something wrong with the market there, as we are all busy patting about climate change, and yet the markets are not reflecting that much is going to happen there.

Now, CFTC, in a very bold move, has taken CCX apparently under its wing and at least is hoping that this may be established as a market of sorts.

I go through all this detail to say that it is not at all clear, even if you were on a farm in which you wanted to put pastureland into trees or, as the Texas A&M study points out, most of the gain for the corn farmers comes from the fact that fewer acres apparently are planted. Therefore, supply and demand raises the price of corn, and that has all kinds of implications in terms of the American food system, quite apart from the worldwide food system in which our whole emphasis is on more acreage and more production with the population of the world growing.

These are all contradictory problems but relevant, I think, to the ordinary farmer who might contemplate. How do you, in fact, stay alive? Do you plant trees? Is there going to be a similar market for no-till planting? We have had celebrations at the Farmers Union, people here in our Committee.

I ask all of this simply to raise a question that maybe you can help answer. How established is it that there is going to be any market for my trees or any trees I should plant? How about the trees that are already there if I promise not to harvest them? You say a contract period of 5 years or 10 years. Do I get credit for that? Or is that in the past? Give me some inclination, if you can, from this practical example.

Mr. MILLER. The market is in its infancy, and in its infancy it will have more variation and gyration than it will in a mature market. But regulations matter, and one of the challenges that the current Chicago market has is that part of its tradable compliance instruments were deemed basically worthless by the future regulations. Therefore, that piece of the market is trending toward zero.

The offsets are not trading at zero, but they have had to move to the over-the-counter market to find value. And so when we sell offsets such as from forestry or soils right now, we are trading at 4 times, 5 times, 6 times what that listed exchange price is that is trading allowances that 2454 did not recognize.

So it is the same problem Europe had when they did not allow banking forward of a market that was long offsets in the current term or long allowances in the current term. They went to zero, and that is what markets do when you have an excess supply of something that has no carry-forward.

Relative to the ability for farmers to participate, we are at, again, the infancy of what all these solutions can be from the agricultural and forestry sectors in our markets. The CCX, which has the only broad-based set of workable protocols, is an incomplete

set. There is a real role for USDA to help set and develop additional protocols. Nitrous oxide management is one that possibly almost all farmers could participate in. But we have no standard protocol for that yet. It is a more expensive protocol to probably do. It is more difficult. It has got some scientific challenges.

At CCX, we took the ones that had the best science around them at the time we did them and started with those, and we have added protocols.

In the Texas A&M study, their ranches did not have any offset income in the Texas A&M study, and I am quite familiar with that. Partly, when they did their panels, the CCX rangeland offset requires management of the stocking rates, and those particular ranches in those representative panels could not economically do what is required of the CCX offsets in order to get offset credits. We have ranches that are complying with that—us, Farmers Union, various different aggregators—but it is not something that every ranch is going to be able to do and remain economically viable. And I think that is one of the things we have to be aware of. While it might be technically feasible for the individual resources that are available, it may not be economically viable to do the things that are required in order to earn offsets.

Senator LUGAR. I ran over my time, Mr. Chairman. I would just underline the importance for our Committee, if we are to adopt a cap-and-trade situation, to go well beyond the House bill and to get into the weeds, so to speak, of this because, otherwise, this is going to be a fiction that somehow there are allowances here, or credits or even a market, without somebody going into the details Dr. Miller has just illustrated in brief. And I think this is critical, or we are going to leave farmers absolutely without defense in this situation, I think zapped all across the board.

Chairman HARKIN. Senator Lugar raises a good point. I thought about this at that previous panel that, you know, you have a stand of trees, we had a forest, a private forest. Now, because he is not adding anything additional, therefore, he gets no offsets. But if he cut down his trees and planted new ones, well, then he would be OK. This is that same old thing that we have been through so many years on this Committee on conservation and other things. If you tear out what you have got and plant something else, well, then you will get the benefits. But if you just keep your conserving practices or what you have done to your land, then you do not get anything, and that just does not make sense to people. It does not make sense to me either. So we have got to address that also on this.

Well, thank you all very much, and we will call our next panel. Thank you very much.

Our next panel, our producer group perspectives, we have Mr. Andy Beckstoffer, and he will be introduced by our colleague. Come over here, Mike. Then Mr. Frank Rehermann, Chairman of USA Rice Producers' Group from California; Mr. Luke Brubaker from Brubaker Farms in—I had a wrong address here on it—Pennsylvania. Mount Joy, Pennsylvania. Mr. Fred Yoder, Past President of the National Corn Growers Association from Ohio. We will ask you all to take your seats there.

We are graced with the presence of a long-time friend of mine, our colleague from the House side, Representative Mike Thompson, and I am going to turn to him for the purpose of introduction because I know he has to get back to the House. But in my way of introducing the introducer, I will just say that Congressman Thompson was first elected to represent California's 1st District in 1998. It includes all of Napa, Lake, Mendocino, Humboldt, and Del Norte counties. I do not know what else you have added. Sonoma County, too?

Mr. THOMPSON. Part of Sonoma.

Chairman HARKIN. Part of Sonoma County, and Yolo, also. Prior to serving in Congress, Representative Thompson represented California's 2nd District in the California State Senate, where he chaired the Budget Committee. So, again, not a stranger to us at all, and a great friend and colleague from the House side. I will turn to Congressman Mike Thompson for purposes of introduction.

STATEMENT OF HON. MIKE THOMPSON, U.S. REPRESENTATIVE FROM THE STATE OF CALIFORNIA

Mr. THOMPSON. Well, Mr. Chairman, thank you very much, Mr. Vice Chairman, thank you also for allowing me to do this. I have got a couple friends testifying today, but I have been asked and am honored to introduce one that I represent at home, and that is my good friend Andy Beckstoffer.

Andy is the founder and the Chairman and the owner of Beckstoffer Vineyards, which farms over 3,000 acres of vineyard in Napa, Mendocino, and Lake counties of California. He is the largest non-winery grape grower in Napa Valley and along California's north coast. He is also the largest seller of premium winegrapes in Napa and on the north coast area, and he provides grapes to over 80 premium wineries.

Since 1970, Beckstoffer Vineyards has been a leader in developing and implementing new vineyard technologies in the California premium north coast area, and Andy has been recognized around the world for these efforts. And I hope he gets a chance to talk about this, but he is doing some great stuff now, a whole bunch of new organic plantings in Mendocino County and Lake County, and something that he might not think is exciting, and maybe you will not either, but being a vineyard owner myself, we have to rip our land before we plant vineyards, and Andy now in his new plantings, he is only ripping the area specific as to where the grapes will be planted, not disturbing the rest of the ground, which I think is pretty cutting edge.

In 1975, he was a founding director of the Napa Valley Grape Growers Association. In 1976, he became a member of the Napa County Planting Commission and in 1983 a director of the Winegrape Growers of California. He is also a member of the World Presidents Organization, a director of the Wine Market Council, the California Association of Winegrape Growers, and the Land Trust of Napa County. And he is an accomplished conservationist. As a farmer and businessman, he understands that investing in the conservation of our land is an investment in our future. His leadership in helping build national support for increased tax in-

centives to put property into conservation easements will be felt for generations to come.

I carried that bill in the House. It has tremendous support over here in the Senate, and he was really the catalyst for that, helped put it together, and he not only talks the talk, but he walks the walk. After that bill was passed, he was the first landowner across the country to put his land into a conservation easement, and it is really significant because it is a historic vineyard in the Napa Valley. And if I told you the property values of a vineyard like that, most people in agriculture would not believe that they would draw that kind of money.

So he has been on the cutting edge. He has worked to restore the Napa River throughout the Napa Valley, and he is a lifetime expert in specialty crop farming. And as everybody in this room knows, specialty crops represent about 50 percent of the entire plant crop economy, and they contribute mightily to our Nation's nutrition.

He has a hands-on knowledge of how not only climate change is affecting winegrapes, but also the benefits that specialty crops provide in helping our country meet the challenges of climate change.

I want to thank you all for allowing me to do this, and I want to thank you in advance for listening to his comments. And I am just proud to be the one to have brought Andy to the Senate.

Thank you.

Chairman HARKIN. Thank you very much, Mike. You are welcome to stay if you would like. I know you have probably got——

Mr. THOMPSON. We are working on this thing called "health care reform" over there.

[Laughter.]

Chairman HARKIN. I have heard of it. I have heard of it. All right. Well, thank you very much, Mike.

Mr. THOMPSON. Thank you.

Chairman HARKIN. I really appreciate it very, very much.

Then we will start with you, Mr. Beckstoffer, and we will work from right to left in this regard. Mike was mentioning something about ripping grapes and stuff. I turned to Saxby, I said, "Is that like minimum tillage that we know about?" It sounds a little bit like that.

Also, I want you to know something else. In 2000, in my State of Iowa, we had a total of 100 acres of grapes in Iowa. We now have over 1,000. So look out, here we come.

[Laughter.]

Senator CHAMBLISS. Mr. Chairman, let me just say, too, that Mike happens to be the Chairman of the Wine Caucus over on the House side, and as a former Member of the House and a consumer, Mr. Beckstoffer, we appreciate you sending a little bit up here every now and then of your fermented product that we can make sure we test every now and then.

Chairman HARKIN. Mr. Beckstoffer, welcome, and please proceed. Again, I am going to ask you to summarize. As you probably have heard, all your statements will be made part of the record in their entirety. If you could sum it up in 6 minutes, please.

STATEMENT OF W. ANDY BECKSTOFFER, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, BECKSTOFFER VINEYARDS, RUTHERFORD, CALIFORNIA

Mr. BECKSTOFFER. Thank you very much. I live in St. Helena, which is a small agricultural town in the Napa Valley of California, and my family grows winegrapes, as you said, and that in your terms is a specialty crop.

We are small farmers, but grapes are a big business. There are over 24,000 grape growers in the Nation, and the full economic impact of wine and grape products is estimated at over $162 billion. Grapes are grown in over 40 States today, and grapes are a significant part of the specialty crop segment of the U.S. agricultural economy. Specialty crops, as Mike says, represent approximately 50 percent of the farm gate value of total plant agricultural production.

We in the winegrape and wine business are very proud of the fact that most medical people believe that wine is good for your heart. I truly believe and hope that that is true.

Chairman HARKIN. I believe.

Mr. BECKSTOFFER. But, for sure, grapes and peaches and pears and carrots and lettuce and tomatoes and all fruits and vegetables are specialty crops that provide essential nutrition to the American people. That is where their real importance is.

Where I live in the Napa Valley, it is a very well known premium winegrape-growing region. What is not so well known is that while some 9 percent of Napa County's land mass is devoted to vineyards, over 10 percent of the county's land is protected by some sort of open space or agricultural conservation arrangement. Conservation and environmental sensitivity are hallmarks of our lives in the wine country. The increased tax incentives on conservation easements which were legislated in 2006 have made a major contribution to our ability to conserve these agricultural lands. In our small valley, over 1,650 acres have been put under conservation easements since 1960, and over 300 of that has been our lands.

Senator Baucus here in the Senate and Congressman Thompson in the House are now sponsoring legislation to make those incentives permanent. These incentives are crucial to land conservation. They are crucial to keeping small farmers on the farm and ultimately crucial for positive climate change.

In considering my testimony, in the limited time I want to emphasize three major concerns.

First, specialty crop growers are generally relatively small farmers. Our family is the largest vineyard owner in the Napa Valley and the north coast. But on any statistic involving all farms, we are very small farmers. This is the case with most specialty crop farmers. We are scattered politically and geographically and do not have the organization or capacity to compete with the large program crops for adequate consideration in major legislation, such as that involving climate change. Without your special indulgence and careful consideration, much of the Nation's nutrition engine will suffer.

Second, it has been widely reported that many car dealers have opted out of the Cash for Clunkers program because of the heavy documentation requirement on their limited staffs. We have simi-

larly limited staffs. I would hope that the reporting requirements of any climate change program would be held to the minimum.

Third, the USDA's Economic Research Service reports that between the years 1997 and 2002 over 8 million acres of American farmland have been lost to agriculture due in good part to urbanization and economic pressures. In California, our population is estimated to double in the next 25 years.

In the Napa Valley, some 60 miles from San Francisco, there is tremendous urban pressure. It is my view that winegrape vineyards here are the long-term highest and best economic use of the land. And for this reason, we have been able to preserve the vineyards with that urban pressure. This is true in varying degrees in all agricultural lands near urban areas. These lands in many cases are relatively small specialty crop lands. It is widely anticipated that Federal and State carbon reduction programs will increase costs for energy, fertilizer, pest management tools, and other inputs such as transportation. If winegrape growers and agriculture are not excluded from any carbon emissions cap while being able to receive credits for offsets provided, these unaddressed increased costs will result in the loss of an additional increment of agricultural lands.

Further, it is my understanding that agriculture, through plant and soil sequestration, has been identified as a priority area for cap-and-trade offsets. If the profitability of agriculture is further reduced through increased costs and competition from foreign wines made with cheap labor with Government supports, that will serve to limit the availability and expansion of agriculture as an important component of any cap-and-trade program.

The winegrape quality and standards in the Napa Valley are in no immediate danger or short-term danger from climate control activity. There are some things that are changing, however. For example, we are experiencing more heat spikes. Generally speaking, heat and sunlight bring beneficial effects to grape ripening and maturity. We prepare our trellises and canopy management to accept and accentuate this. When heat spikes occur, they damage the grapes and thus we must prepare our trellises to avoid sunlight and heat—in direct contradiction to our major objective of heat and sunlight accumulation.

The nights are getting warmer. The secret of producing great winegrapes involves achieving a chemical balance between sugar, acid, and pH. Sugar is accumulated during the day, acid in the cool nighttime temperatures, and pH at both times. Climate change is increasing our nighttime temperatures, and at this time we have no way of knowing the effect on grape balance and quality. We greatly need research to show these effects. I understand that most of the carbon sequestration research has been done on annual crops. Our vines with a 20– to 40–year life span have a significantly different carbon footprint, and their relationship to annual crops should be analyzed.

Another area where climate change is beginning to affect us is pest infestation. The disruption in the ecosystem is producing new pests and mutations and vine diseases that we just do not understand. This could have a major effect on our ability to limit pesticides.

For reasons of economics, fruit quality, and soil and water conservation, we have over the past many years drastically reduced our tractor usage in the vineyards. We limit irrigation practices for reasons of fruit quality, and when we do irrigate, we use effective drip irrigation. We make extensive use of cover crops to host beneficial insects and limit pesticides as well as reduce tillage to limit soil moisture. We——

Chairman HARKIN. Mr. Beckstoffer, could you summarize?

Mr. BECKSTOFFER. OK. We in the grape business have been practicing for a long time, and we just hope that these early practices will be recognized in any potential carbon market or offset program.

Thank you very much.

[The prepared statement of Mr. Beckstoffer can be found on page 65 in the appendix.]

Chairman HARKIN. Thank you very much, Mr. Beckstoffer. I am sorry. We are just running out of time.

Next, Mr. Frank Rehermann, Chairman of USA Rice Producers' Group, also from California. Welcome, Mr. Rehermann. Please proceed.

STATEMENT OF FRANK REHERMANN, CHAIRMAN, USA RICE PRODUCERS' GROUP, LIVE OAK, CALIFORNIA

Mr. REHERMANN. Good afternoon, Chairman Harkin, Ranking Member Chambliss, and members of the Committee. My name is Frank Rehermann, and I am a rice producer from Live Oak, California. Since 1972, my wife and I have produced rice in a family partnership which now includes our two sons. I currently serve as Chair of the USA Rice Producers' Group, one of four organizations which comprise the USA Rice Federation. And, incidentally, Chairman Harkin, I am proud to say that all 850 acres I farm are enrolled in the CSP program.

Chairman HARKIN. Good for you. Thank you.

Mr. REHERMANN. The USA Rice Federation is the global advocate for all segments of the rice industry. Our multi-billion-dollar industry provides jobs and income for a broad and diverse array of people in the value chain. Beyond our obvious economic and nutritional benefits is the fact that we provide winter-flooded habitat for important species of migratory waterfowl and other species. That habitat is critical to their very survival.

Our objections with climate change legislation as recently passed by the House lie in the area of increased production costs. Hopefully, our own Congress will not approve legislation that will have, may have the unfortunate, albeit unintended, consequence of shifting rice production to our foreign competitors because we can no longer compete.

The U.S. rice industry is already faced with the importation of some 750,000 tons of rice per year from foreign origins, and, therefore, competing in our own markets has become more difficult. And as that happens, the natural consequence of that would have an effect on the Nation's ability to provide food security. That would be placed at further disadvantage.

We currently have few, if any, opportunities in rice production to further sequester or reduce greenhouse gases. However, on a

proactive basis, work is newly underway in California to develop computer modeling techniques to quantify greenhouse gas emissions and, accordingly, to estimate emission responses to possible changes in cultural practices. All factors will be evaluated to determine their feasibility.

However, as of now, we cannot identify a way to offset the increases in production costs of rice attributed to H.R. 2454. Moreover, the much discussed study by Texas A&M demonstrates that on all rice farms sampled, production costs will go up significantly, and that causes our bottom line to reduce significantly and ultimately has an effect on equity.

The American Farm Bureau Federation estimates that just the increase in rice production cost per acre could reach as high as $153 per acre. Within that margin lies any ability we have to show a profit.

Additionally, we consider it highly unlikely that rice-producing countries with whom we compete will impose onerous regulatory burdens, as evidenced by historical evaluation. Therefore, we respectfully urge the members of this Committee to fully evaluate alternative approaches to curbing greenhouse gas emissions and to oppose pending or similar climate change legislation.

We have some suggestions that we would like to make today, but in the event that legislation similar to H.R. 2454 is considered in this body, we believe there are several key provisions which must be clearly and explicitly included in the bill to help ensure U.S. agriculture is not irreparably injured in the process.

One, a specific exemption should be included for the agriculture sector from the greenhouse gas emission reduction requirements of climate change legislation and the underlying Clean Air Act.

Second, a definition of "agriculture sector" for the purposes of this exemption should be clarified to include production as the path from the field through the stage of processing necessary for the commodity to be marketed in commercial channels.

We will need additional funding to accomplish more research by USDA and the land grant university system. We need the establishment of a program using the funds and authorities of CCC to compensate producers for their increased input costs. We would like to see the establishment of a robust agricultural offset program that is flexible and run entirely by the USDA.

In conclusion, I urge this Committee to work and the Senate to postpone consideration of climate change legislation until such time that alternative legislative approaches for curbing greenhouse gas emissions are developed which do not injure American agriculture. If this effort, however, is unsuccessful, we request that this Committee work with other committees of jurisdiction and your Senate colleagues to ensure that our recommendations are included in any climate change legislation enacted into law. We believe that these provisions in the current approach to climate change would be very detrimental to the U.S. rice industry.

Again, thank you for the opportunity to present our views. I will be glad to answer any questions.

[The prepared statement of Mr. Rehermann can be found on page 116 in the appendix.]

Chairman HARKIN. Well, thank you, Mr. Rehermann, for being here and thank you for your testimony.

Now we turn to Mr. Luke Brubaker of Brubaker Farms of—is it Mount Joy, Pennsylvania?

Mr. BRUBAKER. Mount Joy, right.

Chairman HARKIN. Mount Joy, Pennsylvania. Welcome, Mr. Brubaker. Please proceed. I am sorry. I was looking at your folder here.

STATEMENT OF LUKE BRUBAKER, BRUBAKER FARMS, MOUNT JOY, PENNSYLVANIA

Mr. BRUBAKER. Thank you, Chairman Harkin and Ranking Member. And I am so disappointed my Pennsylvania Senator just left me earlier, and all the rest of the members, I was going to address them, but they have gone.

Chairman HARKIN. That is all right.

Mr. BRUBAKER. I would like to thank you for the opportunity to speak before you today about the issue of global warming. I do not come here today as an expert on global warming, but to tell you some of the great things that happen on Brubaker Farms, and I believe that we can have an impact on the atmosphere and on global warming.

To begin, I would like to speak with you about Brubaker Farms Dairy and dairies in general and how they can profit from the product—manure—which, in some cases, is thought of as a liability rather than an asset.

I like to think of myself not just as an environmentalist, but also as a business leader where I can lead in the local community and represent dairy farmers on State and national issues. Please refer to my short bio which I believe you received.

Brubaker Farms of Mount Joy, Pennsylvania, is owned by my wife and myself, in partnership with our two sons, Mike and Tony Brubaker. My father purchased the farm in 1929 and started the operation with eight cows. My brother and I purchased the farm in the early 1960's, and at that time it was an animal operation that consisted of 18 cows. In the early 1990's, my sons graduated from college and wanted to come back to the farm to be a part of that operation. At that time, my brother sold his interest in the farm to me and my sons, and we entered in to a formal partnership to manage Brubaker Farms. At the time the partnership was formed, the Brubaker animal operation consisted of 200 cows. The farm now consists of over 800 cows, 600 young stock, and also a 250,000 bird broiler chicken operation per year. These expansions to the operation allow it to provide the necessary income to sustain the three families that now rely on it for their economic well-being.

We have developed an operation that is both financially stable and is an important part of the local economy. We have taken actions to ensure that the site is maintained as a working farm in the future through participation in the Pennsylvania Farmland Preservation Program. In order to address farm commodity price issues, farm expenses, and family financial needs, we are ready to make the necessary business decisions to ensure that the farm will continue to be viable into the future. The farm is a family business, and the economic viability of the operation is critical in order to

allow it to continue to be an effective business well into the future, and for it to be an economically sustainable family enterprise.

The most recent project we have completed is a manure digester. We are excited about what this new addition means to our farm and to the energy security of Lancaster County, Pennsylvania, and neighboring communities. At the present time, our digester is generating approximately 4 to 5 megawatts of electricity a day. Most of the electricity that we generate is sold back to the local electric utility company, PP&L. We have the capacity of producing enough electricity to supply approximately 150 to 200 homes a day, and most of that is closer to 200 homes a day now.

Key to the methane production is the cows and heifers. The manure flows by push and gravity to a recovery pit where it is pumped into a large lagoon of approximately 700,000 gallons and where bacteria in the lagoon converts volatile solids in the manure into biogas or methane gas. The lagoon is completely covered and insulated. The gas flows underground into the generation building which houses a large Guascor engine and generator capable of producing 225 kilowatts.

Now I would like to speak to some of the advantages of a methane digester: reduces the strain on the PP&L grid; reduces the need for electricity produced from fossil fuel power plants; reduces pathogens in the digested manure; separates the solids from liquid and recycles the solids for bedding; reduces the odor by 75 to 90 percent after digested; fly larvae are killed by the digester, resulting in less flies; reduces methane and other greenhouse gases into the atmosphere; weed seeds killed in digested manure which in turn can reduce chemical use; selling electricity to the local power company as renewable energy.

We are permitted to add food by-products that can be metered to the manure which makes extra electricity; possibility of partnering with cafeterias to use food scraps added to manure rather than land filling which also makes electricity. In turn, this can result in a profit to the farmer.

Methane is one of the potent greenhouse gases. It is 20 to 23 times more powerful in trapping heat in the atmosphere than carbon dioxide. We make a profit from the sale of carbon credits to industry or individuals who need or want to offset emissions.

As a greenhouse gas, methane differs from carbon dioxide in an important way. Methane remains a climate change threat in the atmosphere for a number of years.

The reduction in the methane from our digester can lead to a slowing of climate change. Use of the manure after it goes through the digester is readily available to plants for plant food, which in turn helps prevent leaching and a chance for run-off.

As you know, in this critical time, the dairy farmer has some financial difficulty. Some of the things we talked about today could help the dairy producer. And as a side note, I would be happy to offer suggestions or ideas that could help correct the dairy situation.

I believe that over the next 10 years, environmental and renewable energy issues are going to be some of the biggest challenges for agriculture and farmers. Using State and Federal funding and loan assistance for this project and our new solar project to produce

electricity for about 150 homes on the roof of our new heifer barn helps Brubaker Farms make our goals a reality.

I believe investing in projects like these is good for the future of the dairy farmer industry and livestock industry, the economy, the environment, and the whole world.

I will be glad to answer any questions that you might have, and thank you again for the opportunity to speak today.

[The prepared statement of Mr. Brubaker can be found on page 71 in the appendix.]

Chairman HARKIN. Well, Mr. Brubaker, thank you very much. Very stimulating. Very stimulating.

Now we turn to Mr. Fred Yoder, Past President of the National Corn Growers Association, from Plain City, Ohio. Welcome, Mr. Yoder. Please proceed.

STATEMENT OF FRED YODER, PAST PRESIDENT, NATIONAL CORN GROWERS ASSOCIATION, PLAIN CITY, OHIO

Mr. YODER. Chairman Harkin, Ranking Member Chambliss, it is a pleasure to be here. Unfortunately, somebody has to be last, and I guess today I was the last one. I guess I am just lucky.

Again, my name is Fred Yoder. I grow corn, soybeans and wheat near Plain City, Ohio, and I have been an active participant in climate change discussions for many years. In December, I had the opportunity to attend and participate in the United Nations World Climate Conference in Poland where I was able to discuss the role of agriculture in reducing greenhouse gas emissions. Also, in addition to being part of NCGA's efforts, I serve on the boards of numerous ad hoc groups, including the 25x25 Carbon Working Group and the Ag Carbon Market Working Group here in D.C.

I feel strongly that agriculture needs to be considered a significant part of the broader solution as we evaluate ways to reduce greenhouse gas emissions. Our Nation's farmers can play a major role in the market-based cap-and-trade system through sequestering carbon on agricultural lands. In fact, numerous economic analyses have indicated that a robust offset program will significantly reduce the costs of a cap-and-trade program for consumers.

In the near term, greenhouse gas reductions from livestock and agricultural conservation practices are the easiest and most readily available means of achieving reductions on a meaningful scale. The EPA estimates that ag and forestry lands alone can sequester at least 20 percent of all annual greenhouse gas emissions in the United States.

Further, agricultural producers have the potential to benefit from a properly crafted cap-and-trade system. Given these opportunities, it is critical that any climate change legislation seeks to maximize agriculture's participation and ensure greenhouse gas reductions while also sustaining a strong farm economy.

For years, corn growers have adopted conservation practices such as no-till or reduced tillage which result in a net benefit of carbon stored in the soil. In fact, on my farm, I engage in both no-till and reduced tillage. Also, for the past 5 years, I have worked with my State association, the Ohio Corn Growers, on a research project with Dr. Rattan Lal of the Ohio State University on soil carbon sequestration research. As part of our research, we have on-farm

plots at six different locations to study various soils and their carbon capture capabilities. I have been actively engaged from the beginning in defining the research protocols, and this is just one example of the proactive steps our industry has taken.

NCGA was pleased with the inclusion of a number of agricultural offset provisions during the House negotiations on H.R. 2454. However, we currently have a neutral position on the legislation until we finish conducting an economic analysis of the House bill. We expect to have preliminary results of our study coming in the next few weeks, which will better explain the potential cost increases and income opportunities for corn production under the American Clean Energy and Security Act. We must get this nailed down.

Perhaps one of the largest unresolved issues in H.R. 2454 is the treatment of early actors and the definition of "additionality." Producers who have taken steps to sequester carbon or other greenhouse gases should not be at a competitive disadvantage by being excluded from selling credits for future offsets that occur as a result of ongoing efforts. The House bill acknowledges this by allowing the generation of new carbon credits for producers who initiated sequestration practices as early as 2001; however, NCGA does not believe that this language is inclusive enough.

Planting and tillage decisions are made each and every year, and there is no guarantee that a producer will decide to continue the same practice as the previous season. Each and every crop we grow sequesters additional carbon, and Congress should not establish policies that offer perverse incentives to producers to discontinue their conservation practices.

To that end, NCGA supports the development of an "avoided abandonment" offset credit so that no-till producers can participate in a carbon market for their ongoing sequestration activities regardless of when that practice began.

As an aside, the House-passed version of H.R. 2454 also includes an important provision related to the Renewable Fuels Standards. The House bill prohibits EPA from considering indirect land use change when conducting their life cycle analysis for corn-based ethanol until a peer-reviewed study can be conducted to verify the scientific accuracy of the model.

NCGA disputes recent data that would suggest direct correlation between domestic ethanol production and international deforestation. The language in the House bill is a step in the right direction toward sound science and a more rational life cycle analysis. We would urge that the Senate include the same provision in its version of the climate bill.

In conclusion, it is our hope that we can continue to work with the Senate Agriculture Committee to ensure Congress chooses the best path for agriculture and rural America. I thank the Committee for its time, and I do look forward to your questions. Thank you.

[The prepared statement of Mr. Yoder can be found on page 132 in the appendix.]

Chairman HARKIN. Well, thank you very much, Mr. Yoder. Thank you all.

I will just start with you, Mr. Yoder, on what you just kind of closed on. The whole idea of stackability is one that we have looked at, and we will be making, obviously, strong recommendations on

that so that a farmer might be able to get CSP-type payments and do other things and still get to be able to get offsets for carbon sequestration. That is a little bit easier than the early actors.

Now, the early actors, as you point out, was under 2001, I think it is in the House bill.

Mr. YODER. That is what was in the House bill.

Chairman HARKIN. But what about the case of the forester we had here in an earlier panel we had in July, where he is the third generation—I forget. They had 1,000 acres of timber or something like that, but they do other kinds of farming, too. Obviously, it has been in their family a long time. Obviously, they are sequestering carbon. If he cuts down all those trees and plants new ones, he gets to sell offsets. If he does not, he gets nothing. So I think that whole thing has to be addressed because that is a pretty permanent practice to have timber like Senator Lugar has on his farm. So both of those, you raise those issues, and they are very important issues to us.

Mr. Brubaker, very stimulating, what you are doing there. I guess the question I would have is: How have your neighbors in Lancaster County who also raise livestock, how have they reacted to the addition of a methane digester to your operation? There are other dairy farmers around you.

Mr. BRUBAKER. Right. There are many dairy farmers. If Lancaster County was a State, we would be, I think, about number 11, maybe number 12 now. If just Lancaster County was a State, for the number of dairy cows, we would be about number 11 in the United States. So, yes, there are a lot of dairy farmers around, and we are getting a lot of interest in building methane digesters. They are coming from Vermont. They are coming from Minnesota. They are coming to look at our digester. And we are not the only digester in the United States. Do not misunderstand me. I think there are about 110 digesters, give or take, in the United States. But we just built this probably about 2 years ago—well, about a year and a half ago we built it. We started thinking of this in about 2006. I guess that was when milk prices were a little weak then, and we thought, "We have got to find another profit." And we decided it would be a profit coming from the back end of the cow, and so we decided to build a methane digester, which we are getting so much interest in. Our power company in Pennsylvania is paying us a good price for electricity, and that is what I hear around the country, that power companies are not paying a good price for electricity. They are paying us a good price for electricity, and we are selling carbon credits, and it is a win-win situation.

So that answers some of your question.

Chairman HARKIN. I assume you are just running the methane through, what, kind of an engine or something that is turning, a generator? Is that the way you are doing it?

Mr. BRUBAKER. Yes. If you look on the back side of the paper that I—that is actually the picture of the digester right there. And from that digester there, you will see over there at the far left, there is some piping that runs about a 6–inch pipe over into an engine room, which runs a big, almost a 400–horsepower Guascor engine, which runs a generator, which we are selling the electricity right onto the grid.

Chairman HARKIN. Is this economically viable to do something like this? Can you actually make money on something like this?

Mr. BRUBAKER. Well, yes, we are making money on it, and that is why people are looking at it. We did have—in about 2006, Governor Rendell was out to the farm for a meeting, myself and my two sons and the two Secretaries of Agriculture. We took a little trip after the talk, and we sat him beside the manure pit, and we told him what we want to do. He did some writing and said he wants to look into this situation. It was not too long until Pennsylvania had a Harvest grant. We got a Harvest grant, and we also got a grant from USDA which made it work for us to take the risk to build a digester, which it cost about a million and a quarter to do. But if everything goes well, the way we are producing, we are way above expectations on producing electricity, and we should pay it off in 3 to 4 years. And if we would not have had the grants, I believe we could have paid it off—could pay it off in, to be conservative, 8 to 10 years.

Chairman HARKIN. Mr. Rehermann, again, one of the benefits of having you here is, again, to highlight the fact that different parts of agriculture do not fare as well under the proposed legislation, and one of those that has come to our attention are the rice farmers.

I have heard mention of methods to reduce methane emissions from rice farming. I guess that comes from the straw or something? I do not understand that. But are there any kind of practices like that that would be viable as an offset practice for rice farmers?

Mr. REHERMANN. For approximately, Mr. Chairman, the last 30 years, we have investigated methods by which we can rid ourselves of our straw, which yields about 3 ton per acre, a good rice crop. We have sought alternative uses, and to date, we have no feasible, large-scale alternative use for rice straw. And so most of it is incorporated into the soil. Certainly that leads to methane gas production.

We continue that plight. We continue to search, but we have no real evidence that we are going to be able to sequester or reduce the emissions any more than we do.

We irrigate. We are under constant irrigation. We use a fairly high amount of nitrogen. We till the soil. Our soils are heavy clay and not well drained. All those things lead to the emission.

Chairman HARKIN. Again, it is a balancing here that we are trying to do here. There have been, obviously, a lot—well, I have gone over my time. I am sorry. I was not paying attention to the clock. I will finish there, and if I have a follow-up, I will follow up later.

Senator Chambliss?

Senator CHAMBLISS. Well, gentlemen, thanks for your testimony here today. Mr. Yoder, always good to see you.

We have talked about the study that Texas A&M did that has just been released in which there is a very distinct difference in farmers who would prosper from this versus farmers who would struggle from it. We heard some of that from you folks here.

We have got to develop a policy that hopefully will benefit all farmers and ranchers across America and not just a policy that is going to—in this case, as the Texas A&M study showed, would particularly benefit Midwest farmers and corn and soybean farmers.

Do you have any advance understanding of what your study is going to show with respect to this particular piece of legislation and its effect on corn that may be grown in Georgia or North Carolina versus corn that may be grown in the Midwest?

Mr. YODER. Well, I cannot really say for sure what the study that we are doing right now will say, but I will say this: With our work in Ohio with Dr. Lal from Ohio State, there is a definite difference in soil's ability to sequester carbon. So there will be some differences across the country. It is not going to be one size fits all. In fact, if Senator Johanns was here, in the sandy soils of Nebraska it would be virtually impossible to generate a credit from soil sequestration because of the sandy soil, the lack of organic matter.

However, the study that you are referring to from Texas A&M really only looked at two types of offsets, and that was no-till sequestration and also methane digesters. And so it was really kind of narrow in scope.

The other thing, too, that we have to consider is that in the Waxman-Markey bill there were 13 different projects that they listed as projects for agriculture to participate, and it is much broader than just no-till sequestration or methane digesters. For instance, raising a cover crop or reducing the amount of water that you irrigate with, with maybe some varieties that take less water, reducing nitrogen use and things like that.

So I think the thing we have to do in order to make this work for all of agriculture is to come up with scientifically based verifiable projects that we can do clear across the United States and not put one part, like Georgia, at a disadvantage compared to an Iowa or something like that. I think we have the science to do this, but I think it is important for your Committee to really work on broadening this and making sure that we have some science-based projects that everyone can participate in and not just a few.

Senator CHAMBLISS. All of the testimony thus far that we have heard indicates very strongly that we are going to see a rise in input costs. Apparently, nobody is in disagreement with that, whether it is nitrogen or petroleum or whatever it may be. So in order to continue to generate a profit from a corn-growing standpoint, obviously you are going to have to get a higher price for it, which we all assume that would be a likely scenario. Otherwise, as the Texas A&M study showed, the only way you are going to see corn and soybeans prosper is for acreage to come out of production, which means farmers going out of business.

Mr. Brubaker, if that scenario does play out and we see a significant increase in corn prices—we have heard testimony that we are going to have an increase in electric prices, we are going to have an increase in the other feedstuffs that you use in your production. With the dairy market in very tough times right now, what is that going to do to your operation?

Mr. BRUBAKER. Well, maybe we are in a better position than some, but I want to try to look at it as the whole picture of dairy and livestock producers. Maybe one thing you could do would be if a farmer participates in the carbon sequence in one way or another, that you would offset his expenses, his fuel expenses or something like that, if that is going to raise fuel and electric costs.

I am just trying to think of something that would offset it. Exempt that farmer if he participates in the program, offset his fuel prices, electric prices, or doing something like that. Maybe that is an opportunity, or maybe that is an encouragement.

Senator CHAMBLISS. Well, we are in an atmosphere, unfortunately, that rather than increasing subsidies, we keep getting shot at from the standpoint of decreasing subsidies. And it makes it pretty difficult.

Frank, good to see you as always, too. Thanks for being here. The Texas A&M study as well as other studies have shown that rice farmers are not going to fare too well for the reasons that you enumerated. What is this going to do to you and the international market? If the United States forges ahead with a cap-and-trade program, where are rice growers in this country going to be from a global market standpoint?

Mr. REHERMANN. Senator Chambliss, we cannot help but be severely disadvantaged by that if we lose our ability to compete in that global marketplace, and we are constantly being reminded that in order to effectively compete, we have to be a lower-cost producer than trending higher. We have had the same impacts on our input costs, the energy-related input costs that every other business in the United States has had. The principal difference, as you know, is that we cannot pass those costs along to the consumer.

So I peril to think of the disadvantage we are going to be in the export market. We are having a more and more difficult time, as I mentioned, competing against imports into this country.

Senator CHAMBLISS. Well, and I know some of the difficulties you are experiencing now. The last couple of years have been pretty tough years in the rice industry from a global competition standpoint. And if we are looking at increasing your input costs without seeing a collateral increase in prices, are we going to see more and more rice growers go by the wayside?

Mr. REHERMANN. I fear that in this country you will. I think that the people who will benefit will be the growers in the countries that do not implement such onerous regulations, our competing nations—Vietnam, Thailand, Burma. If China and India export, we have big trouble there. I do not look for them to lead the way in climate change initiatives.

Senator CHAMBLISS. Mr. Beckstoffer, I am particularly interested in how a small California winegrape grower can provide offsets under this cap-and-trade program. Can you tell us what emission reduction or carbon sequestration activities winegrape growers are doing now and what they can do under an offset program? And I apologize. We just do not grow a lot of grapes over our way. A lot of muscadines, but not grapes, are used extensively in the manufacture of wines. So educate us a little bit about what you are doing and what can be done.

Mr. BECKSTOFFER. We do not plant grapes but once every 40 years, so that we do not do new things that often. So as many of the people on this panel have said, if our early practices where we sequester carbon every year based on what is already in the ground is not give credits, we are not going to get many credits, because we simply do not do that.

What we do for reasons of grape quality, if you will, and soil conservation is that we—we are very worried about compaction and things of that sort, so we do not drive tractors that much. We are worried about pesticides, so we grow cover crops so we can host beneficial insects and things of that sort. We use drip irrigation so we do not use a lot of energy to irrigate. But all of those are practices that we do every year, and so somehow or another, we must get credit for the photosynthesis and for the carbon sequestration we do with our normal business practices, and that for plants that are planted every 40 years, as Mike Thompson was saying, we do this precision ripping, and that cuts down on tractor usage. It cuts down on carbon because you are actively—you are turning the soil.

But we started that because the rocks were really big and it cost a lot of money to move those rocks. But most of the things we do for wine quality and for soil conservation are things that would help climate control, plant and carbon sequestration. But you have got to give us credit for what we do every year, or we are not going to get much benefit.

Senator CHAMBLISS. All right. Mr. Chairman, I think that is all I have right now. Thank you very much, gentlemen.

Chairman HARKIN. I have another one to ask Mr. Beckstoffer, and that is, it seems to me that you are in a unique position. Your vines are long-term type, carbon sequestration, 30, 40 years on some of these vines. Do I assume that you also—do you do any kind of cover crop in between your vines and stuff like that?

Mr. BECKSTOFFER. Yes, we do, and we do that—what we do is we do it to dry out the soil. We plant the kind of crops that would dry the soil in the spring and then would go away when the plant needs the soil in the rest of the summer, because in California we get rain from November to March and not any time in between that. But our vineyards are—there is a cover crop between the rows that we mow and we do not turn the soil anymore. We mow it, and we mow it only, say, once a year because the kind of crops we do die in the summertime because we do not want to use the soil—we do not want them taking up our soil moisture.

But if you would look at a vineyard, you would see—we plant over 1,000, 1,200 vines per acre, so that is very intense in terms of the green foliage there, which is the photosynthesis. But the ground much of the year is green as well.

Chairman HARKIN. Well, thank you all very much. I just have to respond to my friend from Georgia here on this issue of the increased input costs and the increased price for feed for our dairy farmers or hog farmers or cattle farmers.

Senator Thune and I just had a hearing out in Sioux City here a week or so ago on energy, basically biofuels, and it was stated there by not only growers but some of the representatives of our big seed manufacturers that 300 bushels per acre of corn is not too far in the distance. In fact, I think it was—let me see. It was DuPont or the other one, Monsanto—I forget which one—which they predict that by 2020—they did not predict. They said it is certain that we will have a 40–percent increase in the productivity of corn per acre in this country. And that is not even taking into account some of the genetic research that is going on now, in corn especially. I am probably particular to corn because of Iowa, but corn

where they are developing strains of corn that use less water, that can grow in different parts of the world with less water. Some of it may even be brackish-type water that the plant can utilized like—I always point out there are some plants that produce fruit or something that use sea water, but they have a gene in there that says, "Salt, you stay here, and we will take the fresh water." And they are finding that—like coconuts being, of course, the most obvious one. So if you can find those kinds of genes that we could help introduce, then we could grow corn in a lot of different areas that we are not growing it now.

So we are going to have—I am told it was Monsanto who said that we will have 300 bushels by 2030. Pioneer said we would have a 40–percent increase in 10 years, so that is basically equivalent from both of them. So there is a lot of—we are going to produce a lot more corn per acre in the future. And that is good. That is very good for all of us. So I do not think we have reached the limits of our research yet on those areas.

Well, thank you all very much; this has been very helpful to us, all your testimony. Rest assured we are trying to figure out how we can give the best information possible to the other committees when they bring this up—sometime, I do not know when, maybe this fall.

Thank you all very much, the Committee will stand adjourned.

[Whereupon, at 1:06 p.m., the Committee was adjourned.]

A P P E N D I X

SEPTEMBER 9, 2009

SENATE COMMITTEE ON AGRICULTURE, NUTRITION & FORESTRY
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Wednesday, September 9, 2009 — 10:00 a.m.
216 Hart Senate Office Building
Opening Statement—Senator Kirsten Gillibrand

Thank you Mr. Chairman and thank you for holding this important hearing.

Thank you also to the witnesses here today to help us understand the market we will be creating under this bill. Understanding how this legislation will impact, manufacturers, farmers, and energy producers who will depend on this market is critical for ensuring its success.

I would also like to particularly thank Chairman Gensler for his work and attention on this issue. He brings a wealth of experience to this issue and has been consistently generous with his time and energy in helping to analyze this new market.

I believe that reducing the emissions that cause global warming is a critical goal for environmental and national security reasons. But I also believe that a cap and trade system, setting our country clearly on a path away from fossil fuels, provides our country and the State of New York with strong economic opportunities. If we move swiftly to seize them, we can fuel our economy for decades to come.

Today, and over the weeks and months to come, I am going to continue to listen carefully to concerns from farmers and businesses and work to ensure that all New York industries thrive under a new cap and trade system.

In recent months, New York has suffered with the traumatic repercussions of last fall's financial crisis. As the global home of finance, New York has lost tens of thousands of jobs and billions in income as a result of financial collapse.

A cap and trade system and the well-regulated trading and financing of carbon and carbon offsets offer a much-needed growth opportunity for New York's financial sector.

According to some estimates, carbon is expected to rapidly become the world's largest commodities market if the United States enacts cap and trade legislation and, like other commodities users, companies using carbon permits will depend on the financial sector to provide liquidity in the market and manage risk.

The financial sector will also play a critical role in financing clean energy investments and fueling innovation. Firms looking to reduce their carbon footprint will depend on the financial sector to provide them the necessary capital. Farmers looking to sell carbon offsets will also depend on the financial sector to fund the new practices that can sequester carbon and reduce global warming.

Our success in combating climate change will in large part depend on our ability to fund carbon reduction projects. To be successful, we must create a quality regulatory regime for carbon that instills confidence in potential investors around the globe and protects American farmers and consumers.

We need to empower regulators to take action to control excessive speculation and market manipulation to prevent unnecessary spikes in the price of carbon permits. We must require transparency in the marketplace and provide regulators the tools to take action to ensure a smooth-functioning market.

At the same time we need to create a regulatory regime with sufficient flexibility to allow businesses to develop new technologies and make long term investments.

Firms looking to make these types of investments need to be able to manage their carbon risk over the long-term in a way that standardized products may not allow. Similarly, the offset projects that we must encourage our nations farmers to embark on may require highly customized financial products.

To achieve both these goals we must also bring real regulation to the market for customized products. This will mean creating new transparency requirements, so regulators and the public can monitor risks being taken, and pricing such transactions to reflect their higher risk.

We should also work to integrate our efforts into broader reforms of the derivatives market, to ensure a fair playing field and prevent opportunities for market manipulation or arbitrage. In doing so we need to take advantage of new and innovative techniques that will reduce the costs of trading and improve the ability of compliance entities to manage their risk.

Finally, we must act quickly to seize this opportunity. Across the globe, other countries have begun to take steps towards establishing a robust carbon market. The European Union has established a market worth more than $90 billion. Other countries – including China – have taken significant steps towards building the infrastructure to take advantage of carbon trading.

To ensure the economic and environmental success of cap and trade, we must harness the resources of the financial sector to help make the investments we need to ensure a clean energy future.

The financial sector is just one important sector of New York's economy that will benefit from a cap and trade regime. New York is also one of the nation's leading agriculture and forestry states with a diverse output ranging from wine grapes and dairy products to maple syrup, timber and apples.

Failure to act on climate change could lead to devastating results for New York's farmers, who produce billions of dollars worth of products that nourish our families and construct our homes.

A change in temperature of even a few degrees will greatly impact the temperamental crop of New York's grape producers. The expanding geographical range of invasive species such as the Emerald Ash Borer poses unprecedented risks for New York's 18.5 million acres of forestland. Our coastal regions are under threat of increased flooding and our water-rich inland regions could very well see drought.

In addition to protecting the long-term viability of the agriculture industry in New York State and throughout the nation, this legislation also promises the opportunity to realize a new revenue stream to help our farmers. This is especially important in a state like New York, where small, family-owned, specialty crop producers do not typically receive the same level of public support as farmers in other parts of the country.

Investments in methane digesters, non-food based biofuels and other methods of alternative energy generation promise to provide a new direction of growth for New York's agriculture and forestry producers and their communities. In addition to reducing our reliance on foreign oil and cutting US greenhouse gas emissions, a growth in the clean energy sectors will provide thousands of good jobs to ensure the continuing viability of our rural communities.

I will continue to work with my colleagues to ensure that New York's specialty crop producers and small forest owners are included in any discussions about offset programs. Many of the producers have been participating in voluntary initiatives and other good land management practices for many years. These individuals are innovators and pioneers, who should not be forgotten when we begin discussing incentives.

I would once again like to thank the panelists for taking the time today to come and discuss these very important issues with the committee today. I look forward to working with you as this legislation moves forward.

Senator Chuck Grassley
Statement
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
September 9, 2009; 10:00am

Thank you Mr. Chairman and Ranking Member Chambliss for calling this second hearing of the Committee on climate change. I think it's critical that all views and facts get reviewed by this Committee before we move forward on any legislation.

I also want to make a special welcome to David Miller of the Iowa Farm Bureau who will be on the panel following Mr. Gensler. Thank you for being with us today.

It's especially important that we hear directly from producers at the grass roots. Just last week we saw the positive impression that can be left on federal officials when the EPA accepted my invitation and visited Iowa.

The EPA officials heard straight from the mouths of farmers the impact that rules and regulations made by the agency can have on families and their livelihoods.

The stakeholders shared wagonloads of information, statistics, and real life examples that helped the group understand and learn the issues at the farm level. The EPA asked a lot of questions, appeared to take the message from our family farmers to heart, and promised further dialogue with our producers and stakeholders.

I hope this same process resonates with our committee members and the producers today. I like to think of farmers and ranchers as the original environmentalists of our country.

Farmers know that if they don't take care of our natural resources, their land and livestock will not be productive and their greatest resource will be destroyed.

I think farmers would be the first to endorse a realistic approach to concerns about the climate.

But if we ask our farmers to take on overly burdensome expenses, for an exercise that doesn't include an international agreement, we would be asking them to put themselves at an economic disadvantage to the rest of the world for no real environmental gain.

I look forward to hearing from all of our witnesses today about the benefits to farmers in climate change legislation, but also the real and serious challenges it poses for rural America and your recommendations to address those issues as the Senate moves forward on climate change legislation.

SENATOR THUNE'S OPENING STATEMENT:

I would like to thank the Chairman and Ranking Member for holding today's hearing. I'd also like to thank the panels of witnesses for their thoughtful testimony.

Over the coming months, the United States Senate will likely consider legislation aimed at curbing greenhouse gas emissions, primarily carbon dioxide.

Such a bill will have a dramatic impact on virtually every part of our economy.

In particular, agriculture, which is an energy intensive industry, will be greatly impacted by this legislation.

It is the responsibility of this committee to determine if America's farmers and ranchers will experience a net gain or net cost under a future cap and trade system.

Without question, ALL producers will experience increased input costs. The cost of diesel fuel, gasoline, electricity, and fertilizer will increase at time when our agriculture producers can least afford it.

However, some producers may be able to benefit from planting trees or practicing conservation management activities.

Who will bear the costs and who will reap the benefits are all but settled questions this committee must address.

Additionally, the Senate Agriculture Committee must ensure that the Commodity Futures Trading Commission is prepared to take on the additional burden of regulating what some are predicting to be a multi-trillion carbon market.

What responsibilities should be assigned to the CFTC? What have we learned from the recent financial crisis in the derivatives market? Will the CFTC be prepared for such a historic task in just a few short years?

These are all answers that must be addressed by this committee the near future.

Additionally, I am hopeful that this committee will take this opportunity to address other issues impacting our agriculture producers and our renewable fuels industry.

I believe Congress must act this year to expand the definition of renewable biomass to include federal forestlands and additional private forestlands.

I also believe we should work to address the troubling consequences of indirect land use change calculations in the expanded renewable fuels standard. This was a failed experiment that should be eliminated as soon as possible.

Testimony of W. Andrew Beckstoffer before the

Senate Committee on Agriculture, Nutrition and Forestry

September 9, 2009

My name is Andrew Beckstoffer. I live in St. Helena, a small agricultural town in the Napa Valley of California. Our family farms winegrapes, a specialty crop. Thank you so very much for the opportunity to testify before this distinguished Committee of the United States Senate regarding climate change.

There are almost 24,000 grape growers in the United States. The full economic impact of US wine, grapes, and grape products on the American economy is estimated at $162 billion. Grapes are the highest value fruit crop in the nation and the sixth largest crop overall. Grapes are grown in more than 40 states, and they account for about 30% of the value of all fruits grown in the United States. Grapes are a significant part of the Specialty Crop segment of the U.S. Agricultural economy. Specialty Crops represent approximately 50% of the farm gate value of total plant agricultural production while occupying only about 3% of the nation's harvested cropland.

It is widely documented by medical journals that wine is good for your heart. I truly hope that is so. For sure, grapes, peaches, pears, carrots, lettuce, tomatoes, and all fruits and vegetables are specialty crops that provide essential nutrition to the American people. That is where their real importance lies.

The Napa Valley is widely known as a premium winegrape growing region. What is not so widely known is while some 9% of Napa County's land mass is devoted to vineyards, over 10% of the county's land is protected by some sort of open space conservation arrangement. Conservation and environmental sensitivity are hallmarks of our lives in the wine region. The increased tax incentives on conservation easements that Congress provided in the 2006 legislation has made a major contribution to our ability to conserve agricultural lands. In our small valley, over 1,650 acres have been placed under Conservation Easements since 2006, including 330 of our own. These are major incentives which expire this year. I hope that you will extend them beyond 2009.

Something else beyond nutrition and conservation is important to me. President John Kennedy said that any generation will be less known for the wars they won than for their contribution to the cultural heritage. Over the past 30 years California's fine wines have equaled in quality and often exceeded the finest wines of Europe in critical tastings. The world must now consider the American contribution to this cultural arena along with our technical, economic and military might. Winegrapes are a Specialty Crop with unique national significance.

In considering my testimony before you today I was struck by four major concerns.

FIRST, in the most recent National Farm Bill, Specialty Crop concerns received $3 billion, just one percent of the $289 billion approval. Specialty crops represent the most agricultural worker jobs, and produce much of America's nutrition. Somehow, considering the vast economic and nutritional value of specialty crops, I do not feel that they got a fair share in the Farm Bill. My point here is not to revisit the Farm Bill but to urge that Specialty Crops receive fair consideration as you enact Climate Change legislation.

SECOND, Specialty Crops growers are generally relatively small farmers. Our family is the largest family vineyard owner in the Napa Valley and on the North Coast of California. In total acreage we list behind only two large international wineries. On any statistic involving all farms, however, we are small farmers. That is the case with most Specialty Crop producers. We are scattered politically and geographically and do not have the organization or capacity to compete with the large program crops for adequate consideration in major legislation, such as that involving Climate Change. Without your special indulgence and careful consideration, much of this nation's nutrition engine will suffer.

THIRD, it has been widely reported that many car dealers have opted out of the "Cash for Clunkers" program because of the heavy documentation requirement on their limited staffs. We have a similarly limited staff. I would hope that the reporting requirements of any Climate change program would be held to the minimum.

WAB 9/9/09

FOURTH, USDA's Economic Research Service reports that between the years 1997 and 2002 some 8 million acres of America's farmland have been lost to agriculture due in good part to urbanization and economic pressures. In California, our population of 37 million is estimated to double in 25 years to 70 million people. This is nearly 25% of the entire population of our country today! In that short period of time, it is reported that California could lose as much land to development as we did from the gold rush of 1849 to the year 2000!

In the beautiful Napa Valley, some 60 miles from San Francisco, there is tremendous urban pressure. It is my view that winegrape vineyards here are the long-term highest and best economic use of the land. For that reason we have been able to preserve our vineyard lands. This is true in varying degrees in all agricultural lands near urban areas. These lands in many cases are relatively small Specialty Crop lands. It is widely anticipated that state and federal carbon reduction programs will increase costs for energy, fertilizer, pest management tools and other inputs as well as transportation. If winegrape growers and agriculture are not excluded from any carbon emissions cap while being able to receive credits for offsets provided, these unaddressed increased costs will result in the loss of an additional increment of agricultural lands.

Further, it is my understanding that agriculture, through plant and soil sequestration, has been identified as a priority area for "cap and trade" offsets. If the profitability of agriculture is further decreased through increased costs and competition from foreign wines made with cheap labor and government supports, that will serve to limit the availability and expansion of agriculture as an important component of any "cap and trade" program.

The winegrape quality and standards in the Napa Valley are in no immediate or short-term danger from Climate Control activity. Certainly regional statistics on average degree days do not tell the Napa Valley story. For example, 1988 and 2005 were two of the warmest years on record in California. Because of the influence of the fog brought on by our proximity to the San Francisco Bay and the coast, these were two of the coolest growing seasons in the Napa Valley. This does not mean that we are not being affected or that there will be no long-term effect. We deal in vintage years, each of which

seems to be different. However, something is changing overall.

For example, we are experiencing more heat spikes. Generally speaking, heat and sunlight bring beneficial effects to grape ripening and maturity. We prepare our trellises and canopy management to accept and accentuate this. When heat spikes occur, they damage the grapes, and thus we must prepare our trellises to avoid sunlight and heat—in direct contradiction to our main objective of heat and sunlight accumulation.

The nights are getting warmer. The secret of producing great winegrapes involves achieving a chemical balance between sugar, acid, and pH. Sugar is accumulated during the sunlight hours, acid by the cool nighttime temperatures, and pH at both times. Climate change is increasing our nighttime temperatures, which at this time has an unknown effect on grape balance and quality. We need research to show these effects and the interaction of our different vineyard management systems. I understand that much of the carbon sequestration research has been done on annual crops. Our vines with a 20 to 40 year lifespan have a significantly different carbon footprint, and their relationship to annual crops should be analyzed.

Another area where Climate change is beginning to affect us is pest infestation. The disruption in the ecosystem is producing new pests and mutations and vine diseases that we do not yet understand. This could have a major effect on our ability to limit pesticides.

For reasons of economics, fruit quality, and soil and water conservation, we have, over the past many years, drastically reduced our tractor usage in the vineyards. In the 1980s Napa Valley vineyards were infested with a devastating root disease. In the 1990s we replanted almost the entire valley with new vines and techniques designed to improve grape quality, reduce vine and soil manipulation, and improve conservation of natural resources. At Beckstoffer Vineyards we use only about 50 pounds per acre of nitrogen fertilizer per year. This is far less than most crops. We limit our irrigation practices for reasons of fruit quality and use efficient drip irrigation when we do irrigate. We make extensive use of cover crops to host beneficial insects and limit pesticides as well as reduce tillage to limit

moisture evaporation. We in the winegrape business have for many years been adapting practices that sequester carbon. Hopefully, these early practices will be recognized in any potential carbon market or offset program.

Most of what we have been doing and currently do to reduce greenhouse gases is done to achieve fruit quality, to improve soil and water conservation, and for economic reasons. Only a very foolish farmer, without consideration of future generations, would not seek to save his soil and his water. As concern for Climate Change intensifies, our adherences to those practices and our curiosity about how to improve them increases.

California winegrape growers are national leaders in utilizing and promoting sustainable practices.

We at Beckstoffer Vineyards have participated along with 1,500 other growers representing 68.3% of the total 523,000 California winegrape acres in the California Sustainable Winegrowing program. This program provides self assessment of sustainable practices that are environmentally sound, socially acceptable and economically feasible, and offers concrete suggestions of how to improve. We are also in the process of converting two-thirds of our vineyard acreage to Certified Organic status.

Finally, it is my belief that we as Americans made great progress in the 20th Century. Amazing things were done in the fields of transportation, communications, armament, technology and agriculture. We should be congratulated! But in doing so, in many cases, we dried up or polluted our water, eroded our soils, and fouled our air.

Your hearings today are an obvious recognition of these facts. In the 21st Century we must continue to make progress, but preservation, conservation and environmental sensitivity must be a new requirement. We in the winegrape business are anxious to play under those rules. Given our scattered political voice and historic small share of economic and policy incentives, however, we do need your careful consideration and indulgence as you prepare a policy for Climate Change. I thank you again for

allowing me to testify today, and for your interest in the winegrape industry. I look forward to your help in allowing us to sustain our contribution to the national health and welfare.

PRODUCER PERSPECTIVES
AS THEY RELATE TO DAIRY FARMS
AND
GLOBAL WARMING

Chairman Harkin, Senator Casey and Agriculture Committee Members:

I want to thank you for the opportunity to speak before you today about the issue of global warming. I do not come here today as an expert on global warming, but to tell you some of the great things that happen on Brubaker Farms, and that I believe we can have an impact on the atmosphere and global warming.

To begin, I would like to speak with you about Brubaker Farms Dairy and dairies in general and how they can profit from the product (manure), which, in some cases, is thought of as a liability rather than an asset.

I like to think of myself not just as an environmentalist, but also as a business leader where I can lead in the local community and represent dairy farmers on state and national issues. Please refer to my short bio which I believe you received.

Brubaker Farms of Mount Joy, Pennsylvania, is owned by my wife and me, in partnership with our two sons, Mike and Tony. My father purchased the farm in 1929 and started the operation with eight (8) cows. My brother and I purchased the farm from our father in the early 60's, at which time the animal operation consisted of 18 cows. In the early 90's, my two sons graduated from college and wanted to come back to the farm to be a part of the operation. At that time, my brother sold his interest in the farm to me and my sons, and we entered in to a formal partnership to manage Brubaker Farms. At the time the partnership was formed, the Brubaker animal operation consisted of 200 cows. The farm now has over 800 cows, 600 young stock, and also a 250,000 bird broiler chicken operation per year. These expansions to the operation allow it to provide the necessary income to sustain the three farm families that now rely on it for their economic well-being.

We have developed an operation that is both financially stable and is an important part of the local economy. We have taken actions to ensure that the site is maintained as a working farm in the future through participation in the Pennsylvania Farmland Preservation Program. In order to address farm commodity price issues, farm expenses, and family financial needs, we are ready

to make the necessary business decisions to ensure that the farm will continue to be economically viable in the future. The farm is our family business and the economic viability of the operation is critical in order to allow it to continue to be an effective business well in the future, and for it to be an economically sustainable family enterprise.

The most recent project we have completed is a manure digester. We are excited about what this new addition means to our farm and to the energy security of Lancaster County, Pennsylvania and neighboring community. At the present time, our digester is generating approximately 4-5 mw (megawatts) of electricity a day. Most of the electricity that we generate is being sold back to the local electric utility company, PPL. We have the capability of producing enough electricity to supply approximately 150-200 homes a day.

Key to the methane production is the cows and heifers. The manure flows by push and gravity to a recovery pit where it is pumped into a large lagoon of approximately 700 thousand gallons and where bacteria in the lagoon converts volatile solids in the manure into biogas or methane gas. The lagoon is completely covered and insulated. The gas flows underground into the generation building which houses a large Guascor engine and generator capable of producing 225 kw (kilowatts).

Now, I would like to speak to some of the advantages of a methane digester:

- Reduces the strain on the PPL grid
- Reduces the need for electricity produced from fossil fuel power plants
- Reduces pathogens in the digested manure
- Separates the solids from liquid and recycles the solids for bedding
- Reduces the odor by 75 to 90% after digested
- Fly larvae are killed by the digester, resulting in less flies
- Reduces methane and other greenhouse gases into the atmosphere
- Weed seeds killed in digested manure which in turn can reduce chemical use
- Selling electricity to the local power company as renewable energy
- We are permitted to add food by-products that can be metered to the manure which makes extra electricity.
- Possibility of partnering with cafeterias to use food scraps added to manure rather than land filling which makes electricity. In turn, this can result in a profit to the

farmer.

- Methane is one of the potent greenhouse gases. It is 20 to 23 times more powerful in trapping heat in the atmosphere than carbon dioxide.
- We make a profit from the sale of carbon credits to industry or individuals who need or want to offset emissions.
- As a greenhouse gas, methane differs from carbon dioxide in an important way. Methane remains a climate-change threat in the atmosphere for a number of years.
- The reduction in the methane from our digester can lead to a slowing of climate change.
- Use of the manure after it goes through the digester is readily available to plants for plant food, which, in turn helps prevent leaching and a chance for run-off.

As we all know, in this critical time, the dairy farmer has some financial difficulty. Some of the things we talked about today could help the dairy-livestock producer. As a side note, I would be happy to offer suggestions or ideas that could help correct the dairy situation.

I believe that, over the next ten (10) years, environmental and renewable energy issues are going to be some of the biggest challenges for agriculture and farmers. Using state and federal funding and loan assistance for this project and our new solar project to produce electricity for 150 homes on the roof of our new heifer barn helps Brubaker Farms make our goals a reality.

I believe investing in projects like these is good for the future of the dairy industry's economy, environment, and the entire world.

I will be glad to answer any questions you might have.

Thank you again for the opportunity to speak today.

Luke Brubaker
September, 2009

STATEMENT OF GARY GENSLER

CHAIRMAN, COMMODITY FUTURES TRADING COMMISSION

BEFORE THE

U.S. SENATE COMMITTEE ON AGRICULTURE, NUTRITION AND FORESTRY

September 9, 2009

Good morning Chairman Harkin, Ranking Member Chambliss and members of the Committee. Thank you for inviting me to testify today regarding cap-and-trade legislation before Congress. My testimony will focus on the Commission's experience regulating emissions trading markets and how we can apply that experience to trading in government-issued greenhouse gas allowances and offset credits. In the event that Congress passes cap-and-trade legislation, the Commodity Futures Trading Commission has the necessary expertise to regulate trading in the expanded carbon markets.

Before I turn to the carbon markets, I am pleased to report to you that the CFTC has been very active since the last time I testified before this Committee. Since then, we have held three hearings into whether or not to set position limits in the energy markets like we do in the agriculture markets. We have worked with the Treasury Department to deliver legislative language to the Congress that would regulate over-the-counter derivative markets. We have revised a no action letter and reached an agreement with the United Kingdom Financial Services Authority to enhance our oversight of a foreign board of trade. We have withdrawn two additional "no action" letters that permitted traders to exceed position limits in some of the agriculture markets. We have improved our transparency efforts by disaggregating the data in

our weekly Commitments of Traders reports. And just last week, we held unprecedented meetings with the Securities and Exchange Commission on how we can better harmonize our regulatory structures to most benefit the American public.

Over the past year, we have witnessed the consequences that regulatory gaps and inconsistencies can have on our financial system, the economy and the American people. As Congress moves forward with potential cap-and-trade legislation, I believe it should ensure that there is a comprehensive regulatory framework over the expanded carbon markets – both the futures market and the cash market – without exception.

Proposed cap-and-trade initiatives would impose a ceiling on the total amount of greenhouse gasses that covered entities can emit and expand the market for pollution rights, which are known as "allowances." An allowance is a limited authorization by the government to emit a quantity of carbon dioxide equivalent. The allowance could be traded, used by regulated parties to comply with emissions caps or potentially banked. Along with allowances, cap-and-trade programs for greenhouse gases utilize "offset credits" – credits given for activities that reduce, trap or sequester carbon.

It is crucial to ensure that the carbon market functions smoothly, efficiently and transparently. Effective regulation of carbon allowance trading will require cooperation on the parts of several regulators. There are five regulatory components of carbon markets that I believe should be considered:

1. Standard setting and allocation;
2. Recordkeeping (maintaining a registry);
3. Overseeing trade execution system;
4. Overseeing clearing of trades; and
5. Protecting against fraud, manipulation and other abuses.

The first two components – the actual allocation of allowances and offset credits, and recordkeeping (other than recordkeeping of the trades) – fall within the expertise of other agencies. In other words, others are better equipped to regulate the "cap" part of "cap-and-trade."

For example, the EPA currently issues allowances on sulfur dioxide and nitrogen oxide as mandated under the Acid Rain, NOx Budget Trading and Clean Air Market Programs. On a smaller scale, a conglomeration of ten states in the northeast and mid-Atlantic form the Regional Greenhouse Gas Initiative and issue allowances on greenhouse gas emissions. In each case, other entities issue allowances and maintain the registry. The constant, however, is that the CFTC regulates the emissions futures trading markets. In other words, the CFTC has a great deal of experience regulating the "trade" part of "cap-and-trade."

Specifically, we have broad experience in the latter three components of carbon trading: regulating trade execution systems and clearing of trades and guarding against fraud, manipulation and other abuses. The Commission already oversees trading and clearing of futures and options contracts based on sulfur dioxide, nitrogen oxide and carbon dioxide

allowances and offsets listed on the New York Mercantile Exchange and the Chicago Climate Futures Exchange. Additionally, just last month, under direction from Congress in last year's Farm Bill, the Commission put out a proposed determination for public comment to classify the Carbon Financial Instrument contract traded on the Chicago Climate Exchange as a significant price discovery contract. This would give the CFTC full oversight authority over the contract, giving us additional experience regulating cash emissions contracts. The Commission has abundant experience in the regulation of centralized marketplaces, and should Congress seek to regulate cash markets for emission instruments, the Commission is well-suited to carry out that function.

In most respects, emissions contract markets operate no differently than the other commodity markets the CFTC regulates. While each contract – such as sulfur dioxide, soybeans, treasury bills or natural gas – presents its own unique challenges, the regulatory scheme is essentially the same. Carbon markets have similarities to several different markets that fall within our regulatory authority. For example, carbon allowances and offsets are similar to agriculture commodities in that there is a yearly "crop" and important programmatic regulations governing the nature of the product. At the same time, carbon contracts have similarities to financial products. For example, government-issued allowances and offset credits would be similar to Treasury-issued debt instruments. Futures contracts on Treasury debt are among the most actively traded CFTC-regulated products.

The emissions trading markets that the CFTC currently regulate are small relative to the expected growth of the carbon market as a result of cap-and-trade legislation. Still, the agency has the expertise to apply the same oversight to the much larger, national and mandatory market.

The Commission has thorough processes to ensure that exchanges have procedures in place to protect market participants and ensure fair and orderly trading, that products are designed to minimize potential manipulation and that exchanges comply with the law and regulations. The Commission's compliance staff actively monitors operations to ensure that exchanges are enforcing their rules and that customers are protected from abusive practices. The oversight of clearing is an integral part of the CFTC's regulatory structure. The Commission has extensive experience and a well-established program to ensure derivatives clearing organizations and clearing firms have safeguards to ensure orderly clearing and settlement of transactions and safekeeping of customer funds. Our surveillance staff keeps a close eye for signs of manipulation or congestion and determines how to best address market threats. We have the authority to set and enforce position limits, and our enforcement staff is actively prosecuting cases. In the past year, the CFTC has expanded the scope of its existing energy advisory committee to create the Energy and Environmental Markets Committee, which significantly enhances the CFTC's ability to anticipate and address the full panoply of regulatory issues pertaining to emissions trading markets.

The CFTC has wide-ranging transparency efforts designed to provide as much information to the American public as possible. Specifically, the Commission publishes weekly Commitments of Traders reports, which, starting last week, include disaggregated data to more

accurately depict the makeup of the futures and options markets. The Commission also publishes quarterly data on index investment, a "This Month in Futures Markets" report and annual financial data for futures commissions merchants and futures industry registrants.

Should Congress pass cap-and-trade legislation, the CFTC would work with other regulators and market users to ensure that all transactions in both the carbon futures and cash markets are promptly reported and that a central registry is updated at least on a daily basis. With immediate registry of trades, it will be easier for regulators to identify manipulation in the markets.

The CFTC, however, would need additional resources for new staff and technology to effectively regulate the expanded carbon markets. The Commission is just this year getting back to the staffing levels that it had in the late 1990s. Since then, the markets grew five-fold and the number of contracts grew six-fold, but the agency's staff was cut by more than 20 percent. To take on additional oversight responsibilities, we will continue to work with this Committee and the Appropriations Committees to secure additional resources.

As Congress moves forward and possibly enacts cap-and-trade legislation, I look forward to working with this Committee to ensure that the new markets are comprehensively and effectively regulated. The CFTC is the exclusive regulator of futures markets. I believe that we have the expertise and experience necessary to help regulate the growth in carbon futures and cash markets that will occur if cap-and-trade becomes law. We must protect against the same

hazards in the carbon markets that we currently guard against in other commodity futures markets: fraud, manipulation and other abuses.

Thank you for inviting me to testify today, and I look forward to your questions.

Testimony of Joseph R. Glace
Vice President and Chief Risk Officer, Exelon Corporation
Before the Committee on Agriculture, Nutrition, and Forestry
United States Senate
September 9, 2009

Mr. Chairman and Members of the Committee:

My name is Joe Glace, Vice President and Chief Risk Officer of Exelon Corporation. Exelon is a public utility holding company headquartered in Chicago. Our local retail distribution utilities, ComEd, which serves northern Illinois including the city of Chicago, and PECO Energy, which serves southeastern Pennsylvania including the city of Philadelphia, together serve 5.4 million customers, or about 12 million people – more than any other company in the United States. We have fossil, hydro, nuclear and renewable generation facilities. Our nuclear fleet is the largest in the nation and the third largest in the world. I have worked in the energy field for 29 years. At Exelon, I am responsible for leading our risk management function, including the identification, assessment and monitoring of market, credit, and operational risks.

In my testimony today I want to highlight Exelon's:

- Support for comprehensive climate legislation;
- Opposition to requiring all trading, derivatives, and hedging activities to be conducted on exchanges;
- Support for expanding the CFTC's jurisdiction to the new market for carbon allowances, including the over-the-counter (OTC) market; and
- Support for reporting requirements for OTC transactions in the carbon markets

Exelon was an early and vocal advocate of climate change legislation. We have testified in favor of passage on several occasions. Our CEO, John W. Rowe, first testified in favor of addressing climate change by means of a carbon tax in 1992. We are pleased that the House has passed a comprehensive climate and energy bill and look forward to working with this Committee and the Senate to pass comprehensive, cap-and-trade legislation this year.

Exelon supports an economy-wide bill with realistic targets and timetables, an effective cost containment mechanism, such as a cost collar, and allocating electric sector allowances to regulated local electric utilities with a requirement that the value represented by the allowances is used to provide benefits to customers.

To better understand Exelon's views regarding regulation of the carbon market and the concerns that are the intended focus of this hearing, I think it is important to explain briefly Exelon's overall approach to commodities trading. We are not speculators. We use commodities trading to reduce the price risk we face as an electric generation company. That is, our primary objective is to reduce the risk to our revenues that we would face if we were completely subject to the sometimes sharp fluctuations in short-term, spot market power prices.

Let me delve into this a bit further. A substantial majority of our generation fleet is located in the geographic footprint of what are known as "regional transmission organizations" or RTOs. RTOs are regulated by the Federal Energy Regulatory Commission or FERC. RTOs operate competitive markets for wholesale energy and capacity. Accordingly, unless Exelon does something about it, Exelon is completely exposed to the ups and downs of the short-term, spot market energy prices in those markets. That is, we could make a lot of money if the spot prices turn out to be high, or lose a lot of money if they turn out to be low. Because we are not speculators, however, we are not willing to take that gamble. Instead, our business model is to lock in, or hedge, the price we are paid for the electricity we generate.

We do this by buying and selling energy products that are available in the commodities markets. For example, we might sell an amount of electricity for one agreed price for all hours in the summer months of June through September. We will then know that we will always get that price for that amount of electricity during those four months. We forego the prospect of getting higher prices absent the sale, but, and more importantly, we avoid the risk that prices will fall below the fixed price we are paid by the buyer of the electricity. We also can do the same thing with respect to the fuel we buy to run our

plants. We might transact in the OTC market for coal to lock in our fuel cost for our coal plants.

An increasingly large percentage of our hedging transactional activity is in the markets for purely financially-settled swaps and options, or derivatives, where the underlying reference commodity is usually electricity, natural gas, oil, or coal. For example, we might enter into a swap pursuant to which a counterparty pays us $25 per megawatt for 50 megawatts of electricity per hour for every hour in the month of July, and we pay the counterparty the spot market price that we are paid by the RTO for the electricity we have actually generated. The result for us is that we are guaranteed that we will be paid $25 per megawatt of electricity – no more and no less. The counterparty makes money if the spot prices we pay it turn out to be higher than $25 per MW, and loses money if the spot prices are lower than $25 per MW. No physical electricity actually changes hands; rather, only an exchange of revenue streams happens, based on an underlying variable commodity price (the spot market price of power). Exelon gets a fixed revenue stream and the counterparty gets, and takes the risk associated with, a variable revenue stream determined by the spot market price of power – a risk that Exelon would otherwise take but for the transaction.

Our customers benefit from this hedging and trading activity. We are in a position to agree to longer term power sales contracts with both wholesale and retail customers; the price terms under those contracts are in large part possible because of the relative price stability hedging provides to our portfolio. It is our experience that retail customers in particular want prices for power sales to be stable rather than subject to the fluctuations of the spot market. Without hedging and trading we simply would not be able to do that.

One of the principal concerns many have expressed with adopting a carbon control regime is how it will affect our fragile economy. We at Exelon believe that the economic impact of a comprehensive program will be manageable if the legislation includes the elements outlined above and if it provides the mechanisms necessary for a robust allowance trading program, including derivative products derived from those allowances. Simply put, a properly regulated, robust trading program, plus liquid trading

markets, will help control the overall cost of the program. That is why it is important to view the issues before this Committee, which are the topic of today's hearing, from the customer's perspective. What steps should the Congress take to effectively regulate and ensure the integrity of carbon trading markets without imposing undue costs on consumers?

Our strongly held view is that any regulatory reform of the commodities markets should ensure that the products which we use to prudently hedge our business risks remain available to us and at a cost that is comparable to the costs we face today. This means that we believe it would be a mistake to force most, if not all, derivative hedging transactions like the ones I just described to exchange-traded platforms such as the New York Mercantile Exchange (NYMEX), or to require that all bilateral or OTC derivative transactions be cleared through exchanges like the NYMEX. We enter into futures contracts on the NYMEX, and also clear some transactions with NYMEX and other clearing platforms, but a substantial component of our derivatives hedging program is in the OTC market without clearing.

Transacting on exchanges is much more expensive than in the OTC markets because it requires posting of substantial amounts of cash as collateral. This is one reason we do not – in fact cannot – conduct all of our hedging activity on exchanges. The OTC market enables us to transact with creditworthy counterparties without having to post potentially huge amounts of cash collateral but also without taking on any materially greater amount of default risk. We can more efficiently husband our cash by using other forms of payment security and collateral to secure some of our risks bilaterally in the OTC markets, including letters of credit, payment guarantees, and pre-payment arrangements. Were we to have to move all of our hedging to exchanges, any move in price could require additional cash outlays in the hundreds of millions of dollars range, and possibly even in the billions. This, in turn, would mean that we would have to charge substantially more for our product – electricity – which means our customers would have to pay substantially more for this vital commodity.

The same is true, albeit indirectly, of any requirement to clear OTC derivatives. Counterparties will be loathe to clear materially larger volumes than they do currently, because once cleared, their counterparty becomes the exchange, and the more costly posting requirements applicable to exchange-traded transactions would then kick in.

Another drawback of limiting hedging activity to exchanges and clearing platforms is that these entities will only offer futures for, or provide a clearing platform for, a standardized set of products. Exelon enters into customized transactions that get us a lot closer to completely eliminating the particular price risk we are trying to hedge than would one of the standard products that would regularly trade on exchanges.[1]

To draw the obvious conclusion – power prices will be higher, meaning that consumers will ultimately pay more than they would otherwise, if companies like Exelon are forced to do all of their hedging on exchanges and clearing platforms.

Exelon is not alone in its opposition to requiring all transactions to go through exchanges. I want to draw your attention to a recent letter sent to all senators by a large group of trade associations representing the energy sector, rural electric cooperatives, and consumer groups, a copy of which is attached to this testimony. It raises the same concerns about the increased costs of dealing primarily through exchanges and clearing platforms that I have explained, and therefore shows that there is a broad consensus among energy suppliers and consumer associations that forced exchange trading and mandatory clearing is not the way we should address the concerns that this committee is tackling.

---

[1] As noted in a recent briefing paper published by the Pew Economic Policy Department, "[e]conomic efficiency is harmed if those with commercial needs for hedging are forced entirely into standard derivatives positions that are relatively poor hedges, or if derivatives markets are unable to innovate along with changes in the economy." Darrell Duffie Dean Witter Distinguished Professor of Finance at Stanford University's Graduate School of Business, (2009), "How should we regulate derivatives markets?," Pew Briefing Paper # 5, Pew Economic Policy Department, p. 18. See http://www.pewfr.org/admin/task_force_reports/files/Pew_Duffie_Derivatives.pdf

Exelon believes there are better ways to protect commodity markets from the risk that some entities may try to manipulate them, and from the more fundamentally systemic risk that the country faced as a result of the unregulated and frenzied speculative trading that went on in the credit default swap markets. To explain what we think would make the most sense, I now turn to the question at hand – what to do about the coming market for carbon emissions allowances.

The carbon cap and trade proposal that Exelon supports, and that is contemplated in the legislation passed by the House, will immediately result in a large, new market for carbon allowances. One of the critical electricity consumer-protection features of the House-passed bill is the provision that would require allocation of 30% of the allowances - which recipients would receive at no cost - to regulated local distribution utilities. This proposal has very broad support, ranging from investor-owned utilities, electric cooperatives, and municipals, to state regulators and consumer advocates. The local distribution utilities are not "covered entities," to borrow a term of art from the House bill; that means they will have no compliance obligation, and therefore will not "need" the allowances they receive for compliance purposes. The utilities, however, would be required to ensure that the benefit of those allowances goes to their customers. Every state, and the District of Columbia, has a public utility commission, or PUC. The PUCs regulate the local utilities and have authority to ensure that the customers do, indeed, benefit from the allowances. In the case of Exelon, our distribution utilities, PECO and Com Ed, will sell the allowances, and then the Pennsylvania and Illinois PUCs will oversee the use of the proceeds to ensure that they will benefit customers. One way they will consider to accomplish this result will be to use the revenues to reduce customer rates. They could also require the revenues to be used for financial assistance to customers who need it or energy efficiency programs.

Generation-owning entities like Exelon, as well as other emitters, will need to procure allowances to comply with carbon emissions caps; we and other generators will be covered entities. In this regime, the cost of carbon allowances will be a cost of doing business for generators. It will be just like the cost of gas, oil, or coal – an input that is necessary to enable us to make and sell our

product. And Exelon will need to hedge the price risk associated with that product. That will mean that Exelon will want to have as wide a range of options as it currently does to hedge its fuel price and power price risks, meaning the full array of both exchange-traded and OTC offerings that now exist.

We recognize, however, that in this new market as in others, there is a need for fair and balanced regulation. No one wants another crisis that could pose systemic risk, or a market structure with continuing regulatory gaps that can tempt unscrupulous traders to manipulate markets and force prices above appropriate market levels.

That is why we support the expansion of the CFTC's jurisdiction to the new market for carbon allowances, including the OTC market that will certainly develop. This should allay any concern that speculators could artificially drive up the price of both the derivatives used to hedge the cost of carbon allowances in OTC markets, and the price of the allowances as such. The Commodity Exchange Act already contains strong anti-manipulation provisions that should be made applicable to OTC markets, and perhaps revised and refined to ensure that they provide to the CFTC the tools it needs to prevent manipulation.

For the same reason, Exelon also supports the adoption of new reporting requirements for OTC transactions in the market for carbon allowances. The CFTC has to have access to information about transactions to enable it to fulfill its regulatory oversight and enforcement function. Also, the obligation to report, as such, will be a powerful deterrent to would-be manipulators.

In addition, Exelon appreciates the critical nature of the country's need to prevent, for all time, the kind of crisis we faced last year, which revealed to all that unbridled trading activity could pose potentially catastrophic systemic risk. Accordingly, in addition to comprehensive transaction reporting requirements, Exelon supports the development and establishment of rules and guidelines that the CFTC would use to "stress test" the riskiness of the portfolios of major swap dealers and participants active in the carbon markets,

and in particular of those whose primary business, unlike Exelon's, is to make markets and trade derivatives for their own account.

I appreciate the Committee's invitation to testify today. You are dealing with an extraordinarily complicated subject area. I hope that I have provided you with a sense of why it is important to ensure that there is effective oversight of the emerging carbon markets while at the same time guarding against over-regulation that would result in higher costs for companies like Exelon and in turn for our customers. I would be pleased to answer any questions you may have.

Joint Association Letter Regarding the OTC Derivatives Issue

July 10, 2009

Dear Senator:

The undersigned energy supplier and consumer associations represent all the major segments of the electric power and natural gas industries serving virtually all of the consumers in the United States. We are writing to express our concern with certain aspects of proposals to address oversight and transparency of over-the-counter (OTC) energy markets. While we support the goals of the Administration and the Congress to improve transparency and stability in OTC derivatives markets and to prevent excessive speculation, it is essential that policy makers preserve the ability of companies to access critical OTC energy derivatives products and OTC energy commodities markets. We rely on these products and markets to manage risks to help stabilize and keep energy costs low for consumers.

The members of the associations represented on this letter use the OTC markets to hedge a variety of risks associated with energy production and fuel costs. We use OTC contracts to help insulate our business and customers from excessive price volatility.

Specifically, we are concerned with proposals to impose mandatory clearing of all OTC transactions, as well as requirements to force OTC derivative transactions to be moved onto an exchange. We believe that such proposals would significantly increase costs for companies seeking to hedge risks through OTC products, as well as greatly limit, or eliminate altogether, needed customized products used for risk management for the following reasons:

- The high cash margin requirements of a clearinghouse or an exchange would significantly increase transaction costs, and tie up needed cash at a time when the cost of capital is high, access to capital markets is uncertain, and our industries need to invest billions in new energy infrastructure.

- At the same time, since clearinghouses and exchanges require a high level of standardization and liquidity in the derivatives and commodities products traded, we believe that such proposals would greatly reduce the ability of companies to find the customized derivative products they need to manage their risks. For example, in the case of electricity, the prerequisites for standardized and centralized clearing are missing, since its unique physical nature precludes significant storage and requires that it be consumed when generated in hundreds of physical markets.

Ultimately these increased costs and risks will be borne by all consumers. We believe that there are far better ways to accomplish the goals of greater transparency and effective regulatory oversight of OTC energy derivatives and commodities markets without mandatory clearing or forcing these products to be moved onto an exchange. We would welcome the opportunity to discuss these issues with you.

List of supporting associations:

American Gas Association
America's Natural Gas Alliance
American Exploration & Production Council
American Public Gas Association
American Public Power Association
Edison Electric Institute
Electric Power Supply Association
Independent Petroleum Association of America
Interstate Natural Gas Association of America
Large Public Power Council
National Association of Manufacturers
Natural Gas Supply Association
National Rural Electric Cooperative Association
US Chamber of Commerce
US Oil & Gas Association

Statement of the

Iowa Farm Bureau Federation

To the Senate Committee on Agriculture, Nutrition & Forestry

Full Committee Hearing

Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System

Presented by

David Miller, IFBF Director of Research & Commodity Services
and Chief Science Officer AgraGate Climate Credits Corporation

Wednesday, September 9, 2009 — 10:00 a.m.

216 Hart Senate Office Building

Thank you very much for this opportunity to present testimony and discuss issues regarding market structure and market performance as it pertains to carbon markets. My name is David Miller and I am the director of research and commodity services for the Iowa Farm Bureau and the Chief Science officer for AgraGate Climate Credits Corporation, an affiliated company of the Iowa Farm Bureau. AgraGate is one of the leading aggregators of carbon credits from U.S. agricultural and forestry lands under the existing protocols of the Chicago Climate Exchange. We provide the means for thousands of farmers and landowners across more than 30 states to access the existing voluntary carbon markets. We help them enroll, quantify and verify their potential carbon offset credits so that they can be registered and marketed to entities that have a need for such.

I also farm. On our 400 acre farm in southern Iowa we converted to continuous no-till in order to qualify to earn carbon credits under CCX rules. I am one of thousands of U.S farmers, forester and ranchers, who work more than 16 million acres, that have been paid for providing environmental services through the CCX enrollment, verification and carbon credit sales process. (See Figure 1) Our credits can be sold to any of the 400 plus legally-approved members of CCX, including companies, governments and universities that legally commit to reduce their emissions, as well as investors and others. While I have served for over six years on various governing committees at CCX (There have been more than 300 committee/subcommittee meetings in the past 6 years – the CCX system is not "set it and forget it."), I am speaking today on behalf of AgraGate and Iowa Farm Bureau.

Occasionally, we have been asked why all of the credit registrations we have done have been on the Chicago Climate Exchange. The simple answer to that is that CCX has the only protocols that are "workable" for production agriculture and private forest lands. Various aspects of the protocols of other registries have design elements that limit their acceptance by offset providers.

Market design and structure matter and are critical to market performance. Some of the items that I would like to discuss today include market transparency, offset protocol standards and the critical need for fungibility of compliance offsets.

Pricing Transparency

Market transparency is critical to smooth operation of a carbon market. Transparency means that not only must there be a clear enumeration of what criteria are used to define offsets, but that there must be mechanisms in place so that prices (bids, offers and sales transactions) are publically reported and readily available. The only market that currently offers that transparency is the Chicago Climate Exchange. The electronic trading platform was very transparent about bids, offers and actual transaction prices. On the exchange, all of the compliance instruments were equal and fully fungible. Under that condition, the members of the CCX that needed compliance credits could buy excess allowances or any type of offset that was registered with the exchange and know that their compliance commitment would be met. Unfortunately, that pricing transparency has been sharply curtailed. Under the provisions of H.R. 2454 (The American Clean Energy Act of 2009), there is language that suggests that domestic offsets from current registries may be exchanged or recognized in the federal regulatory program, but it does not provide specific indication that allowances from CCX will be recognized. This

differentiation has resulted in all offset transactions moving to bi-lateral, privately negotiated trades where the buyer can be assured that they will receive offsets rather than any CCX compliance instrument as might be the case on the electronic platform.

To improve transparency, CCX rules have been updated to require that all privately negotiated trades be reported to the exchange and they post these trades daily. But, the bid-ask spread has widened significantly and the market has fragmented such that the offsets from soil are valued differently than the offsets from forestry which are valued differently that the offsets from methane destruction, etc. In fact, there is even differentiation of value based on the geographic location of the offset project. This has increased the transaction costs associated with marketing carbon offsets and has reduced the net returns to the actual offset project owner.

Regulatory uncertainty is now harming the thousands of U.S. farmers and companies who have taken the lead in building rules-based carbon markets. It is extremely important to provide a smooth transition for those who are making emissions reductions in CCX and other verified programs so that continued progress on their part can be made to reduce emissions.

Other carbon registries have little or no pricing transparency. There is no public record of the bids, offers or transaction values of offsets registered and retired on the Climate Action Reserve, the APX-Voluntary Carbon Standard or CDM projects. The lack of market pricing transparency means there is much less information available to market participants and tends to shift undue market power to large traders to the detriment of project owners and smaller participants.

Fungibility of Compliance Offsets

Fungibility of compliance offsets, where a registered offset credit equals a registered offset credit regardless of the source of the credit, is a market design characteristic that is essential if the transaction costs of the carbon market are to be minimized. Fungibility of offsets will foster efficient market operations and enables transparency since it is conducive to trading of the compliance instruments on electronic exchanges with full pricing transparency.

"Term Credits" as delineated in H.R. 2454 are not fungible compliance instruments. They only delay compliance obligations. They do not satisfy compliance obligations. They are an inferior product and based on the experience of temporary credits under the European trading system, they will have little or no value. It is extremely problematic that H.R. 2454 has relegated all soil sequestration offsets, by design, to the class of term credits. It is neither necessary nor desirable from a market design perspective to address the issue of permanence in this manner. There are better ways to address that issue and a discussion of a better approach is contained in our written comments. In our analysis, we believe term credits will be highly discounted by the marketplace, especially if the expectation is that credit prices in the future will be higher. Relegating soil offsets to term credits will minimize the participation of working farmlands in carbon offset markets.

Offset Design Criteria

According to the EPA analysis, biological sequestration represents upwards of 90 percent of the expected total offsets during all timeframes outlined in the ACES legislation. Thus from a macro perspective, biological sequestration is the linchpin of an effective domestic offsets program for the agriculture and forestry sections. Bio-sequestration offsets are the only means by which domestic offsets can deliver low cost, near term and high volume GHG reductions, all critical requirements in allowing the uncapped sectors of the economy to facilitate the capped sectors' transition to a low-carbon future.

Offset sources need clear, simple, protocols, or rules, which define eligible practices and associated record keeping. The cost of perfect information is usually too high. So, reasonable compromises, including conservative carbon accumulation rules, must be employed

Design criteria for offset protocols can "make or break" the viability of agricultural and forestry offsets as real tools in the effort to reduce atmospheric carbon. To be viable, offsets must be designed for "working lands." It is the active growing of crops, grass, and trees that will take the carbon from the atmosphere in the first place. The income from these production activities is essential to the sustainability of the carbon-sequestering activity. Private farmlands and forests are not preserves – and we don't want them to be if we want to have affordable food, fiber and fuel. Income from carbon offset credits is quite likely to be the incremental incentive that will entice participants to take on the costs and liabilities that compliance with multi-year offset protocols will require. But the carbon offset income in highly unlikely to be sufficient, by itself, to sustain the dedication of the land to these carbon sequestering activities. No-tilling crops like corn, soybeans, barley or wheat will not only sequester carbon in the soil, enhancing that resource for generations to come, but also helps the world by producing food on the most productive lands in the world rather than having fragile lands degraded by subsistence agriculture.

But, to be a workable part of the solution, carbon offset protocols must work within the framework of existing agricultural markets. Length of contract matters. In Iowa, more than 60 percent of the farmland is rented by the operator with the vast majority of that land on one-year renewable leases. In our experience of working with farmers on carbon offsets, the number one reason why a farmer would NOT participate in a carbon offset program is the length of contract. Even the 5-year contract that we use in connection with the CCX protocol is long enough that many farmers believe it adds enough liability that they cannot participate. It is difficult to commit to being fully liable for reversals that can create backward looking liability for 5 years when the lease agreement that governs control of the land is for a shorter period of time. And it is unlikely that the emergence of a carbon market will result in a wholesale change in landlord-tenant relationships and the structure of land leases. We have looked at the proposed protocols of some other registries. Some of these protocols have single term length of commitment from 20 years to 199 years. Our experience is that farmers and private forestry landowners are very reluctant to sign contracts that extend that long. We believe that 5-year contracts for soil sequestration (with the option of renewing the contracts) are workable, but even minimum contract length of 5-years will significantly reduce participation by active farmers.

The 15-year contract length for managed forests is of sufficient length that it is a major deterrent to participation by private landowners. Sure there are some forest preserves and special cases

where 100-year contracts can be entered into. But our experience is that very few private landowners are willing to do so -- and the vast majority of the carbon-sequestering opportunities are on private lands. We have looked at the proposed protocols of some other registries. Some of these protocols have single term length of commitment from 20 years to 100 years. Our experience is that farmers and private forestry landowners are very reluctant to sign contracts that extend that long. We believe that 5-year contracts for soil sequestration (with the option of renewing the contracts) are workable, but even minimum contract length of 5-years will significantly reduce participation by active farmers.

Generalized quantification methodologies are a very effective and low-cost way to quantify soil sequestration offsets. (This is the methodology contained in the CCX soil and rangeland protocols.) Soil sequestration results from the carrying out of specific practices in conjunction with crop production. While the exact quantity of carbon that is sequestered varies across the landscape due to variations in soil characteristics, plant growth, climatic conditions, etc., across a large number of acres the actual amount of carbon sequestered will be the average of the area times the number of acres carrying out the appropriate practices. There is substantial data from a number of highly controlled research plots that provide great insight into what the average rate of sequestration is for land resource regions. Granting offsets at the average rate for a defined region (adjusted for the permanence reserve) guarantees statistically that the number of credits granted were a true representation of the actual sequestration that has occurred. Under this approach, any individual acre may actually sequester more or less carbon than the rate that is used in the generalized approach. In fact, it is quite likely that the distribution of a large number of acres will have the characteristics of a normal distribution with equal likelihood of actual sequestration rates that are above and below the average.

Don't be fooled by the "illusion of accuracy" that exists when credits are granted based on site-specific soil sampling. Generalization of site-specific soil samples and granting credits based on the results of such samples introduces much error and variation into the crediting process. The reality is that there is likely to be as much variation within an 80 acre field as there may be across a region. Using a generalized quantification approach with wide-spread participation eliminates the potential for selective sampling and skewing of the results based on sampling procedure. Plus, the use of a generalized quantification approach allows for use of satellite technology for compliance verification which can greatly reduce the costs of verifying compliance. Is there a role for soil sampling? Yes, for general monitoring of the overall effectiveness of the soil protocol, but not for granting of individual offset credits. USDA should do systematic soil sampling to monitor the progress of the soil offset protocol and to periodically adjust the generalized crediting rate. Over time, the more data points that exist, the more localized the differentiation of the crediting rate that can be established with statistical confidence.

Permanence versus Duration

While biological processes are not permanent, they do have substantial duration and the lack of permanence should not be used as a reason to restrict or limit the use of biological sequestration as carbon offsets. Attached in our written testimony is a briefing document about how an implicit "permanence reserve" can be incorporated into sequestration offset design which allows

the registered credits from sequestration activities to have the characteristics of permanence and be fully fungible with other offsets.

Credit Integrity and Offset Reversals

In order to maintain market integrity, it is essential that registered, serially-numbered offsets not be subject to de-listing due to a reversal event of a specific project. A buyer of a registered offset credit must be assured that the credit, once registered, represents a viable compliance unit and will not be disqualified after registered or purchased.

Offset providers should be fully accountable for reversals during the period of active crediting. We support the concept of a compliance reserve for biological sequestration offsets in which a specified percentage of the registered credits are held in a not-available for trading compliance reserve until the term of the crediting period is completed. The credits held in this reserve should be used to cover any reversals that may occur under a sequestration project. However, a reversal should not result in a de-listing of a registered credit. A reversal during the active crediting period should result in a requirement that the reserve account be reduced by the amount of any reversal. Once the active crediting period is completed, reserve credits should be released as available for sale. Any reversal that might occur after the active crediting period would be covered by the implicit permanence reserve that was deducted at the time of credit quantification. This assures that all registered credits have met the permanence criteria.

Market Regulatory Framework

Farm Bureau policy states, "The integrity of all U.S. commodity futures and options exchanges as a pricing mechanism must be maintained by the members of the exchanges and their overseeing governing bodies. Commodity futures and options trading serves a useful purpose for a number of commodities by providing a means to transfer certain types of risk. Other commodities should be included where need exists and research shows futures and options trading would be beneficial. We urge that regulatory laws be strictly enforced. We support the use of off-exchange agricultural trade option contracts in commodity marketing, which would include complete risk disclosure, vendor integrity and the opportunity for cash settlement of the option."

As is being demonstrated by the early action programs, carbon can and is becoming a commodity that can and will be traded just as other commodities. The experience of the Chicago Climate Exchange is proving that markets for carbon can and do work. (See Figures 2 & 3) While the CCX market is currently operating as an Exempt Commercial Market under the Commodity Exchange Act, its regulatory status may change as the CFTC is now assessing whether CCX performs a "Significant Price Discovery Function".[1] Based on the requirements of the regulated carbon market, contracts and services are being developed to supply projects and products that

[1] CCX also operates the Chicago Climate Futures exchange, a CFTC-regulated Designated Contract Market that is the only active marketplace for futures and options contracts on USEPA SO2, and NOx allowances, as well as carbon dioxide emission allowances in Regional Greenhouse Gas Initiative.

meet market requirements. However, the actual registry and retirement of allowances and offsets should be done on regulated, open, transparent markets with specified standards for price reporting that would include date of transaction, vintage, quantity and pricing information.

CFTC Regulation

The CFTC should continue in its role as the regulator of derivatives, futures and options contracts associated with carbon trading. Farm Bureau opposes efforts to combine CFTC and the Securities Exchange Commission and supports regulation of the commodity futures business by CFTC. Derivatives, futures and options on carbon contracts are not fundamentally different than other derivatives, futures or options contracts. The oversight and regulation provided by the CFTC is adequate for these markets. However, we urge CFTC to be diligent in its oversight of futures exchanges and floor traders to ensure that integrity of these markets is maintained and to curb practices that could result in manipulation or artificial price swings.

The CFTC should establish speculative position limits for carbon futures and option market with appropriate exemptions for bona fide hedgers and end-users of carbon credits. Investment and index funds should be subject to speculative position limits. To minimize the potential market distortions and/or manipulations, carbon market derivatives should be required to clear on regulated, public exchanges with full price reporting.

Similar to corn, soybeans and other agricultural commodities, the cash market transactions between farmers, ranchers, forest landowners and project developers and aggregators should be exempt from direct regulation by the CFTC. There is sufficient state contract and business law to govern these transactions.

Capital and Margin Requirements

Leverage is an issue in the financial markets. One of the major contributors to defaults of credit default swaps and mortgage-backed securities was leverage, particularly in the derivatives of these products. High degrees of leverage set the stage for small swings in market conditions to cause financial stress. It is important to note that throughout the stress in the financial markets of the past year, no defaults occurred on the regulated futures exchanges. The market structure and discipline that is imposed on these markets helped them perform while the over-the-counter market was at times in a state of disarray. Farm Bureau policy supports the governing body of the commodity exchanges to continue to establish predetermined, publicized limits for margins at various market price levels for each commodity. We believe the leverage levels of derivatives traded by major market participants should be examined and brought under greater regulatory scrutiny by the appropriate regulatory agency. Margin and capital requirements that create a strong incentive for dealers and users of derivatives to trade them on regulated exchanges or regulated electronic platforms should be developed.

USDA Administration of Offsets

As part of the regulatory structure for carbon, USDA should be charged with unique responsibilities regarding offsets. USDA should develop a set of agency-approved offset

standards and protocols for biological sequestration from agriculture and forestry and methane destruction that would be used the mandatory carbon market and could be used by voluntary carbon markets. USDA should provide the administrative support and oversight of offset standards development, review, and update and should be actively engaged in coordinating the linkage of U.S. domestic offsets with international offset markets. The agency oversees standards for grains, livestock and other agricultural markets and should be the agency in charge of setting standards for carbon market offsets.

Thank you for the opportunity to provide input and information to the Committee.

Included as part of our written comments is a summary of Farm Bureau policy regarding carbon regulation, carbon markets and commodity futures and options markets.

How Chicago Climate Exchange Contracts Create Carbon Offsets that Represent "Permanent Reductions"

1) At the Chicago Climate Exchange (CCX), contracts for offset credits cover a 5-year period for cropping practices and a 15-year period for forestry practices.

2) Under a CCX contract, an offset provider agrees to initiate and maintain a set of practice(s) that, for the contract period, reduces CO2 equivalent emissions by a specified amount. CCX utilized a scientific panel to inform the CCX offset committee regarding the appropriate rate of carbon sequestration that would occur under various practices. The actual crediting rates utilized by CCX represent a 20% reduction from the "scientific" rate recommended by the scientific panel.

3) Once offset practices have been implemented and verified, the first year's tradable offset credits are issued to the provider. Additional offset credits are issued annually for each year of the contract; under a five-year contract, a producer would receive five years of offset credits. The credits are considered to be "permanent" reductions in CO2 equivalent emissions.[2] (How this works, in practice, is explained below.)

4) At the end of the contract period, the producer is under no further obligation to maintain the offset practices. Using a crop example, the producer has provided five years of offset services and, in return, has received five years of tradable offset credits. How then, can five years of offset practices and offset credits be considered permanent reductions?

5) The mechanism which causes offsets to be considered permanent reductions is that producers receive only 80% of the CO2 equivalent reductions that the CCX calculates they have actually made. This 20% discount, in effect, provides a "Permanence Reserve" of actual offsets that have occurred but have not been credited. As long as the amount of any reduction leakage caused by producers who discontinue offset practices after their contracts expire is, in aggregate, less than the offsets in the Permanence Reserve, then, in practice, the reductions can be considered to be permanent. In other words, CCX considers that the offset reductions are permanent <u>for the system</u> but not for each individual contract.

6) The Permanence Reserve only applies to "reversals" after the end of the contract period. All offset providers are responsible for meeting the contract provisions on which their soil sequestration credits are based during their contract period. Any actions taken by an offset provider that results in a reversal while "under contract" would require a complete recovery or replacement by the offset provider of the "reversed" offsets covered by the contract. Therefore, there is full accountability by individual offset providers during the period of

---

[2] Consider a five-year CCX contract whereby a producer agrees to use no-till practices to grow his corn and soybeans beginning with the 2009 crop year. If the "actual" CO2 equivalent reduction as determined by the CCX is one metric ton per acre per year, the producer receives an offset credit of 0.8 tons for 2009, an offset credit of 0.8 tons for 2010, an offset credit of 0.8 tons for 2011, an offset credit of 0.8 tons for 2012, and an offset credit of 0.8 tons for 2013. Over the five-year contract period, the "actual" reduction is 5 tons but the credited reduction is 4 tons.

active contracting and the systemic accountability by the Permanence Reserve for reversals that may occur after the contract period.

7) Note that the Permanence Reserve operates, in a sense, through a sort of "invisible hand." Individual contracts are not tracked for permanence and offset credits are not deposited into or withdrawn from the reserve. A key question is how big does the invisible hand need to be? We believe that USDA could conduct periodic surveys to inform the system about how large of a reserve is really needed. Based on survey results of actual reversals, the discount rate could be adjusted every 5 years to reflect the true risk of post-contract reversals. In addition, incentives for contract renewal, which maintains full accountability for reversals, could be incorporated to further reduce potential post-contract reversals.

8) CCX believes that the 20% discount reserve is more that sufficient to offset permanently the leakage that occurs if some producers discontinue offset practices after their contracts expire. First, producers can renew a contract, continue the practices, and continue to receive credits. [3] Second, if some producers stopped contracted practices after the end of the contract, the most likely practices that would replace them likely would be carbon neutral[4]—i.e., not sequestering additional carbon but not, on net, emitting additional carbon, either. Third, practices such as no-till have a propensity for continuance for many producers once they have gotten over the initial hurdles of adoption and the producer becomes comfortable with all aspects of the practice. Continuation of the practice is further enhanced because of the capital commitments already made in implementing the practice, and because of potential future savings associated with the reduction in energy use from fewer trips across fields and reduced labor requirements associated with continuing the practice.

9) The CCX originally used a 30% discount from calculated actual reductions in determining the number of offset credits to issue but eventually concluded that 30% was too high. Some analysts believe that the discount percentage needed for the Permanence Reserve to work is in the 2% to 3% range. Annual USDA surveys of tillage practices to determine the levels of reversal activity on previously no-tilled lands would provide a good indicator of whether the Permanence Reserve provided by a 20% discount factor is too high or too low.

10) Approaching the permanence issue indirectly in a systemic way—rather than requiring permanence for individual contracts—is needed because of the structure of U.S. farming. Much land is rented out and farms are sold. Producers of particular tracts change over time. Dave Miller of the Iowa Farm Bureau, an expert on the CCX, notes that five-year contracts are about as far as contracts can be stretched and still get participation by farmers. "We need to trust the system to, on average, establish permanence for offsets. Without some approach like the CCX discounted credits and the 'Permanence Reserve' they create, a broader offset system for agriculture will never get off the ground."

---

[3] While there is a saturation point where no additional carbon can be sequestered so additional contracts would not work, the two following points indicate reasons why already sequestered carbon will not necessarily be released in large amounts—which is the condition that must be met for the CCX offset structure to be considered as providing permanent offsets.

[4] Research by Drs. Alan Franzluebber, Jerry Hatfield, Charles Rice, etc.

11) All soil sequestration credits "share the burden" of potential loss of permanence. This method actively recognizes that there is a positive probability that some sequestration reversal activity could take place after the end date of the contract and that some portion of the sequestered carbon could be released to the atmosphere. However, it also recognizes that the exact timing, intensity and location of that reversal or carbon releasing activity is not known at the time of crediting for any soil sequestration activity, therefore all soil sequestration credits share the risk of a post-contract reversal by having a portion of their credits from current sequestration activities reduced by committing some pre-determined fraction of the actual sequestration rate to the implicit Permanence Reserve, thus reducing the actual amount of credits to that which now have the characteristics of "permanence". This approach removes the significant administrative burden of post-contract tracking of offsets and allows credited offsets to be fully fungible within the compliance regime. Post contract monitoring can be achieved by the survey methods previously listed and ongoing adjustments to the program and crediting rates, as appropriate.

12) Across a large landscape (such as production agriculture) the law of large numbers applies and the laws of probability apply. If all of the offsets from that class of offsets share the probability of loss of permanence and have that probability of loss quantified into the crediting rate, then the resulting "credited" offsets will only reflect the portion of offsets that are permanent.

Figure 1. U.S. Farmer and Landowner Participation in CCX Offset Programs
9,008 producers enrolled, 16,632,284 acres, 37 States

State	Number of Producers	Acres Enrolled	State	Number of Producers	Acres Enrolled
AL	133	600,122	MT	484	1,701,004
AR	56	61,886	NC	10	4,000
CO	260	631,058	ND	1,381	1,804,845
FL	35	90,000	NE	1,553	3,754,961
GA	22	90,532	NJ	1	19
IA	671	386,534	NM	31	731,169
ID	8	40,846	NY	2	581
IL	942	200,443	OH	116	58,723
IN	133	94,947	OK	12	23,833
KS	402	505,790	OR	7	28,003
KY	133	75,580	PA	13	5,982
LA	42	32,858	SC	17	80,245
MD	10	5,155	SD	956	3,145,518
MI	395	186,016	TN	14	11,454
MN	247	70,899	TX	305	594,006
MO	92	45,663	VA	40	10,211
MS	182	50,337	WA	7	39,957
MT	484	1,701,004	WI	221	69,686
			WY	75	1,399,422

Figure 2. Emission Reductions and Project-based Offsets in CCX Years 2003 through 2007* (metric tons CO2) – As of 02/20/2009 since a portion of new member emission reductions are currently undergoing verification.

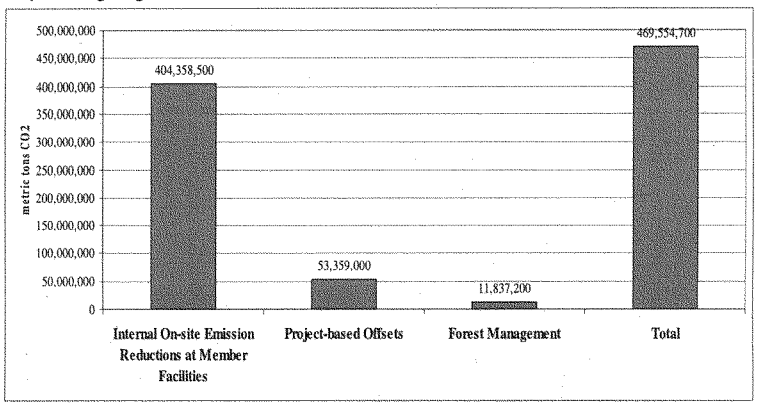


Figure 3. Chicago Climate Exchange Carbon Financial Instrument Spot and Derivatives volume 2004-2008

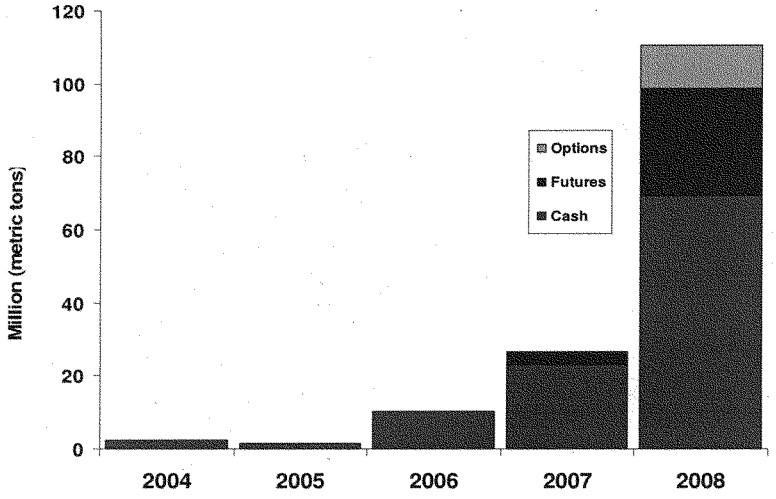
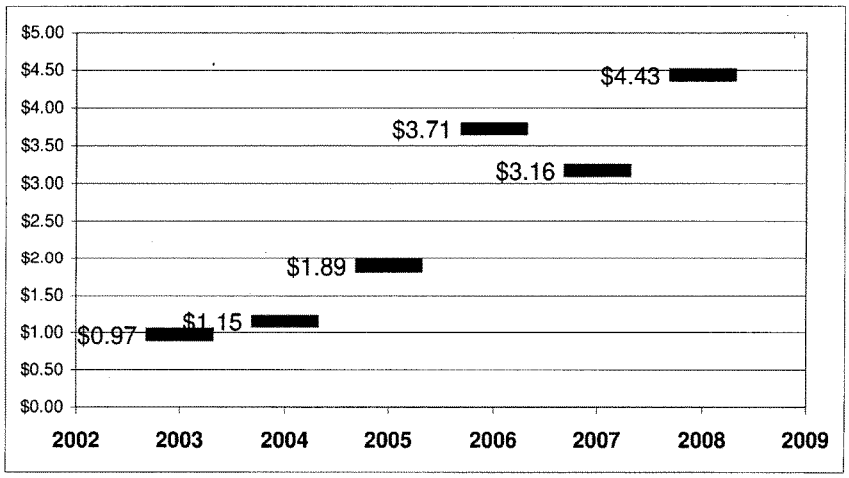


Figure 4 . Annual Average* Price for CCX Carbon Financial Instruments 2003-2008



American Farm Bureau Federation policy on Carbon and Environmental Credit Incentives

We oppose the imposition of carbon emission related taxes or fees on horsepower of vehicles and equipment used for agricultural production.

We support research that identifies the advantages and disadvantages of carbon credits as it relates to carbon sequestration;

We oppose:
(1) Mandatory air quality standards for ozone and particulate matter on farmers and agricultural businesses;
(2) Air permits for agricultural operations that are not science based; and
(3) Any efforts by the EPA to implement permitting fees and/or protocol or take regulatory action regarding greenhouse gas emissions for production agriculture.

Environmental Credit Incentives
Market-based incentives, such as pollutant credit trading, are preferable to government mandates. We support:
(1) The development of a practical voluntary market-based carbon credit trading system. To encourage this new market, we also support a USDA pilot carbon credit trading project to develop trading criteria, standards and guidelines;
(2) Farmers being compensated for planting crops or farming practices that keep carbon in the soil;
(3) Seeking alternative energy sources, which will minimize atmospheric pollution;
(4) Providing incentives to industries seeking to become more energy efficient or reduce emissions of identifiable atmospheric pollution and the means of preventing it;
(5) Providing incentives to individuals seeking to reforest fragile lands that are currently in agricultural production;
(6) Emission offsets that sequester carbon through agricultural practices should be fully recognized in any cap and trade system and should not be limited to a percentage of total offsets;
(7) Participation in climate discussions to enhance and maximize agriculture's ability to capture economic benefits from an emerging carbon market; and
(8) Market-based solutions, rather than federal or state emission limits, being used to achieve a reduction in greenhouse gas (GHG) emissions from mobile sources.

We oppose:
(1) Mandatory restrictions to achieve reduced agricultural greenhouse gas emissions;
(2) Mandates relating to GHG policies, that would adversely impact agriculture;
(3) Any attempt to regulate methane emissions from ruminant animals under the Clean Air Act or any other legislative vehicle;
(4) Emission control rules for farming practices, farm equipment, cotton gins, grain handling facilities, etc., and urge EPA to re-evaluate the imposition of standards on farm and ranch equipment and other non-highway use machinery;
(5) Unilateral mandatory state or federal GHG emission reduction requirements; and
(6) Including the carbon impacts resulting from indirect land use changes in other countries in the carbon life cycle analysis of biofuels.

American Farm Bureau Federation Policy on Commodity Futures and Options

The integrity of all U.S. commodity futures and options exchanges as a pricing mechanism must be maintained by the members of the exchanges and their overseeing governing bodies. Commodity futures and options trading serves a useful purpose for a number of commodities by providing a means to transfer certain types of risk. Other commodities should be included where need exists and research shows futures and options trading would be beneficial. We urge that regulatory laws be strictly enforced. We support the use of off-exchange agricultural trade option contracts in commodity marketing, which would include complete risk disclosure, vendor integrity and the opportunity for cash settlement of the option. We should provide educational programs for producers to learn about this risk management tool and work with commodity buyers to offer agricultural trade option contracts.

We will:
(1) Aggressively work to maintain agricultural representation on Commodity Futures Trading Commission (CFTC);
(2) Oppose efforts by CFTC to regulate cash grain;
(3) Encourage CFTC to require additional delivery points and assure an adequate delivery system;
(4) Continue to work with state Farm Bureaus and their affiliated marketing agencies to encourage the expansion of forward pricing services based on futures and options and to strengthen current programs;
(5) Encourage worldwide electronic trading at U.S. commodity exchanges;
(6) Support expanded use of mini-futures contracts on all commodity exchanges;
(7) Support changes in current futures contracts if research shows that they will result in maintaining or increasing liquidity of the market;
(8) Oppose efforts to combine CFTC and the Securities Exchange Commission and support regulation of the commodity futures business by CFTC;
(9) Urge CFTC to increase oversight of futures exchanges and floor traders to ensure that integrity of these markets is maintained and to curb practices that result in manipulation or artificial price swings;
(10) Review price-setting mechanisms and make recommendations for the most effective price discovery systems for identity-preserved grains;
(11) Urge the governing body of the commodity exchanges to continue to establish predetermined, publicized limits for margins at various market price levels for each commodity;
(12) Oppose efforts by the commodity exchanges to charge a fee for delayed market quotes;
(13) Conduct a review and actively participate in the reauthorization of the Commodities Exchange Act. That review will seek to minimize price manipulation and ensure the markets are effective as a price discovery mechanism given the increasing levels of contract production;
(14) Encourage commodity exchanges to have an active and viable agriculture advisory committee; and
(15) Support regular and thorough review of the CFTC and commodity markets.

We encourage the use of marketing tools or other marketing alternatives. We support hedge-to-arrive contracts being honored when used as a marketing tool that ensures delivery of the

commodity on the contract and has a set delivery date. Those entering into these agreement or contracts should be held liable for their own actions.

NICHOLAS INSTITUTE FOR ENVIRONMENTAL POLICY SOLUTIONS
DUKE UNIVERSITY

TESTIMONY OF TIMOTHY H. PROFETA

DIRECTOR

NICHOLAS INSTITUTE FOR ENVIRONMENTAL POLICY SOLUTIONS

DUKE UNIVERSITY

before the

U.S. SENATE COMMITTEE ON

AGRICULTURE, NUTRITION AND FORESTRY

September 9, 2009

Chairman Harkin, Senator Chambliss, and members of the committee, thank you for the opportunity to testify before the Committee today. It is an honor to be here.

Four years ago, I left Washington to found the Nicholas Institute for Environmental Policy Solutions at Duke University. The Institute is intended to be a two-way bridge between the knowledge and convening power of Duke and decision-makers such as yourselves. The Institute has focused its resources on the key environmental challenges facing our planet, and no topic has demanded greater attention than global climate change.

One area in which the Institute has recently focused is designing the financial market that would be created by a cap-and-trade system for greenhouse gases. It is clear that the success of this policy approach hinges, substantively and politically, on whether the market will operate in a way that is fair, efficient and responsive to the lessons learned from the current financial crisis. The Institute staff has worked with our Visiting Fellow Jon Anda to launch our Carbon Market Initiative, engaging with a number of faculty from Duke University's Fuqua School of Business and Law School to assess the key elements of a successful carbon market – from financial market design, to accounting, to auction design. Three papers are due to be published in October, led by Professors Vish Viswanathan, Leslie Marx and Katherine Schipper, that will more deeply investigate all of those topics.

The Benefits of a Market-Based Climate Policy

As I noted, this testimony is focused on the issues and concerns regarding the design of the greenhouse gas market. Given the financial market failures in recent years, it is understandable that a market approach should not be viewed as a foregone conclusion. However, I would submit that, given the Nicholas Institute's evaluation of the numerous policy options proposed to

address climate change, I believe the market approach remains an effective means to achieve the environmental goals of greenhouse gas emission reductions at the lowest cost.

Cost, in the end, is the determining factor. No sector of the economy is more attuned to these issues than the agricultural producers who are the constituents of this committee. As an aside, let me note that the Nicholas Institute this week released a report co-authored by several leading agricultural economists assessing the impact of a carbon market on farm incomes. The study found that net flow of GHG revenue and indirect commodity market revenues for farmers far outweigh increased operating costs. The study also forecast some losses in economic welfare to consumers and agricultural processors. However, benefits to crop and livestock producers far outweigh these economic losses, signaling gains to the sector as a whole. If done the right way, agriculture can be made a winner in climate legislation.

But no matter what the models show, no one would dispute that we should adopt the policy that achieves our goals at the lowest possible cost. History demonstrates that the market is the best means to accomplish this objective. In the most famous example, Congress mandated in the 1990 Clean Air Act that utilities engage in what was then called "emissions trading" to reduce sulfur dioxide pollution – a major contributor to acid rain. The 1990 Clean Air Act amendments, which launched the program, are a resounding success—achieving the environmental goals at 20 to 30 percent of the predicted cost.

Market-based systems to address environmental concerns allow both the federal government and private enterprise to take advantage of their respective strengths. The U.S. government is in the best position to set and enforce a "cap", or limit, on national GHG emissions. Capped entities determine for themselves the least-cost manner of complying with the emissions limits.

Under a cap-and-trade program, a GHG "allowance" is created for each ton of capped emissions. The allowances are fungible and can be traded among market participants. At the end of each compliance period, regulated firms surrender allowances to the government equivalent to their emissions. The program gives firms flexibility, either to reduce their own emissions or to buy allowances from another firm. This process minimizes the overall economic cost of the program, as it provides an incentive for firms with the lowest marginal cost of abatement to make the cheapest reductions first. Cap-and-trade systems are at the heart of the major legislative proposals to address climate change, including the American Clean Energy and Security Act passed by the U.S. House of Representatives earlier this year and the Climate Security Act that was before the Senate in June of 2008.

Without a market mechanism, the government must have perfect foresight of the costs of emission reductions and the circumstances that will affect those costs (such as when technologies will be available) in order to deploy resources most efficiently. Providing covered entities with flexibility in how they trade allowances among themselves may be especially important in this circumstance, as long-term compliance with the declining cap will depend on the emergence of new technologies.

Lessons Learned from Recent Market Failures

Much of the market's cost-reducing benefits, however, could be weakened if the market does not operate transparently and efficiently, thereby creating a sizeable gap between the price of greenhouse gas abatement and the price in the market. Americans know all too well that such imperfect markets occur, as the debate on climate change legislation takes place in the shadow of glaring examples of market failures over the past year and a half. These failures, however, can also provide important lessons that Congress can apply to the creation of a carbon market.

1. Petroleum price spikes – The spikes in the petroleum markets during the summer of 2008 highlight the importance of market transparency and adequate regulatory jurisdiction. No federal agency has comprehensive authority to regulate offshore petroleum markets and there was insufficient information to monitor potentially manipulative activity adequately. As a result, government officials and the general public were unable to determine the degree to which the price spikes were caused by excessive speculation, market manipulation, or normal market reactions to supply and demand. Recent regulatory changes give regulators this power, an important aspect of a successful regulatory process.

2. Credit Default Swaps – The economic crisis caused by failures of credit default swaps highlight the importance of a system for settling counterparty risk. In the CDS market, the settlement practice was inadequate, and the regulator was not aware of the vulnerable positions taken by major market players. The experience has underlined the need for transparency and adequate risk management. There is widespread acknowledgment that the CDS market would have benefited from (a) more government oversight to ensure the underlying value and integrity of the financial instruments and (b) more information to allow market participants to evaluate the risk of the parties with whom they were contracting.

3. The Madoff Affair – The Ponzi scheme orchestrated by Bernie Madoff highlights a separate issue—the importance of a vigilant regulator with adequate oversight authority and resources. In the Madoff situation, as the recent SEC inspector general's report indicates, the data needed to unearth the scheme were readily available; the cops were simply not walking the beat.

The lessons learned from these recent experiences are really quite clear, and if they are applied to the carbon market, should avoid repeats of the prior failures. In fact, the mechanisms to address these concerns already exist, and are included in many of the broader market reform proposals currently under consideration, including increased oversight, mandatory clearing of standardized products, real-time pricing and volume transparency, and expanded agency jurisdiction to cover the full scope of activity in a marketplace. These reforms, if passed by Congress, may apply across U.S. financial markets, including a new carbon market.

Unique Aspects of the U.S. Carbon Market

Many will claim that the carbon market should be treated just like any other commodity market. But it would not be like any other market – it will be somewhat unique. There are three distinguishing aspects of the market.

First, unlike markets in physical commodities, the entire carbon market system is created by the government to achieve a societal goal. Demand for the product, and the product itself, is created by government action, and thus the government has a special duty to ensure that its market operates effectively. Confidence in the product is also essential; in this way, the government's role in providing an accurate and transparent registry of emissions and in creating the protocols to ensure that offsets are real and verified are essential to keeping confidence in the market.

Second, entities covered by the legislation will have no choice but to participate in the market, and it is a market with an ever-reducing supply. For example, if the American Clean Energy and Security Act became the law of the land, a pool of 5.5 billion allowances in 2016 would decline to 5.1 billion in 2020 and 3.5 billion in 2030. Unlike traditional commodity markets, options for increasing supply in the event of allowance shortages will be limited to the amount of credits allowed from offset projects that operate outside of the covered sectors.

Third, the carbon market is likely to be driven heavily by derivative instruments (i.e., futures and options), underscoring the need to design an appropriate regulatory structure from the outset. Legislation will likely result in the existence of two major markets: (1) a cash market that will trade allowances from the current year; and (2) a derivatives market, that will allow the parties to purchase futures, options, and other instruments aimed at creating future rights to allowances.

Because of the design of climate legislation, the derivatives market will likely dominate. In particular, climate legislation will likely create a long-term obligation for regulated entities and those entities will need access to financial instruments to hedge their exposure—a necessary element to securing investment for new, low emitting energy technologies. The American Clean Energy and Security Act, for example, would distribute 132 billion allowances from 2012 through 2050. Yet, less than 5 million allowances will be issued in the first year of the program. This small initial "float" of allowances will likely drive demand for derivatives that offer future protection against price changes. Looked at another way, we are asking emitters to take on 38 years of abatement with potentially as little as 1 year of allowances available to manage risk.

From that perspective, it is entirely appropriate that we are here today, as the Commodities Futures Trading Commission is the natural entity to regulate the derivatives market expected to arise under these circumstances. Effective regulation of these markets is critical to ensuring a stable market that provides covered entities with the financial products necessary to meet their compliance obligations in an efficient manner.

At bottom, we must develop this market *de novo*. Financial markets typically evolve over time as they grow, and regulatory changes often follow the development of new financial products or respond to failures in the market system. Because Congress would create a new carbon market via legislation, lawmakers have the opportunity to design a transparent, efficient market at the

outset that builds on the best practices for market regulation and lessons learned from recent market failures.

Four Principles for the Carbon Market

I would like to leave you with four principles for an effective carbon market based on the lessons of the past decade: (1) real-time transparency; (2) adequate risk management and settlement; (3) a vigilant and well-funded regulator; and (4) transparent data and strong quality controls on the allowances traded.

1. Real-Time Transparency

Electronic markets for stocks and bonds have demonstrated that real-time transparency has made markets more efficient. Electronic markets also facilitate real-time market oversight – making it better, faster, and cheaper. Real-time access to information about market activity is the cornerstone to managing risk, reducing market volatility, and empowering market participants and watchdog organizations to monitor the market for manipulation, excessive speculation, and other illegal activity. Accurate, real-time information about prices and trade volume allows market participants to make more accurate bids and offers. This, in turn, helps to ensure that allowance prices more accurately reflect the marginal cost of abating emissions.

Transparency also can help maintain public confidence in the fairness and stability of the market—an element that may be essential to the long-term success of the cap-and-trade program's ability to reduce emissions in a cost effective manner. Real-time market information allows the public to monitor the effectiveness of the regulator as well as the behavior of market participants. Market data collected from multiple sources could also help assure public investors that their assessments of price, market direction, and counter-party risk are based on accurate data. In addition, disclosure requirements for publicly-held companies and financial institutions allow investors to verify the accuracy of financial reports.

In general, publicly-available information should include:

- The instruments that are trading;
- Prices;
- The volume of trading activity;
- Where trading is taking place
- The entities that are trading and the positions they hold; and
- The positions held by market participants.

To the extent that carbon instruments are traded on registered exchanges, the exchange member's activity will be "printed" on the exchange as the trade occurs. This would apply to allowances, futures, options, and possibly swaps. If OTC transactions take place in the carbon market, the legislation will need to ensure that the regulator, market participants, and the general public have sufficient data to oversee and evaluate trading activity.

Congress will need to balance the public's access to timely market information with the legitimate concern that covered entities may need to protect confidential business information. It is important to note that the default real-time transparency as to "who" is trading is limited to the registered exchange member. In some cases this may be an emitter, but in many cases it will be an intermediary. Emitters, just like large mutual funds in the equity markets, could report their positions at a later date so that their activity cannot be "front-run" by others. Emitter reporting could be monthly or even quarterly along with their financials.

In addition to the information made available to the general public, regulators should have access to the full range of market activity in real-time in order to prevent and punish market abuses, including fraud and manipulation. The more detailed information an oversight body receives concerning trade prices, volume, positions, and trends, the better its capacity to detect trading irregularities and inconsistencies. With each of these elements in place, regulators can respond quickly to unexplained spikes in market price or trade volume to abate excessive speculation and ensure that prices reflect supply and demand.

2. Adequate Risk Management and Settlement

Carbon market participants also need to know that allowances purchased on the spot, forward and futures markets, which are held to maturity, will be delivered. The collapse of the mortgage-backed securities and credit default swaps markets in the fall of 2008 highlights the importance of managing the levels of risk that market participants may undertake.

In regulated financial markets, counterparty risk is generally managed by "clearing" transactions. Clearing consists of the confirmation, settlement, and delivery of transactions. Clearing houses serve as a central counterparty in a transaction in order to protect opposing parties from a default by the other. Clearing houses also compute the adjusted value of open positions on futures contracts (how much is owed or collectible) based on changes in contract prices – and use this information to adjust margin to ensure integrity on the marketplace. In addition, the clearing organization may verify the transactions between parties to discover and resolve any discrepancies quickly.

In the carbon market, a capped entity cannot run the risk that a contract to purchase allowances will not be fulfilled. This is the element of a compliance market that differs from a financial market. One can imagine financial remedies for non-performance of a carbon allowance contract. However, the capped entity that has not had its purchase filled with a physical delivery cannot submit to the EPA a financial settlement—it must submit allowances. Monitoring of the spot, futures and forward markets to assure that market participants are able to make delivery on their contractual agreements will be an important part of the regulators role in the carbon markets.

As much trading should occur on exchanges, or at least be cleared centrally, as is feasible. The system that you are building for this market really has three goals: (1) price discovery, (2) transparency, and (3) risk management through clearing. An exchange requirement would achieve all three goals; a requirement to print and clear all trades, even those occurring over the counter, will achieve the latter two. And in fact, as long as some significant volume occurs

across the exchanges, there will be discovery of prices that can be used to inform the OTC transactions as well.

Many will contend that clearing of long-term structural contracts will be difficult, as such transactions are unique and not liquid, and that parties will be required to post the collateral, or margin, necessary to participate in the market. These are nontrivial issues, and pose a choice between mitigating systemic risk and creating the additional cost of posting margin for entities. It will be your role to evaluate the tradeoff between these priorities.

In the case that Congress provides any exceptions to cleared or exchange-traded transactions, transparency for the counterparties and the regulator is even more essential so that the counterparty risk can be effectively evaluated.[1] Such exceptions should only occur if regulators know the extent of the obligations of the various counterparties in the carbon allowance and allowance derivative markets so as to ensure that such OTC markets remain properly regulated.

3. Vigilant and Well-Funded Regulator

Access to market data should be coupled with sufficient resources to process and analyze the information, broad jurisdiction that allows the regulator to oversee any trading that involves allowance-based financial instruments, and appropriate enforcement to address market abuses when and where they may occur. If Congress will ask the CFTC to take on the oversight of this new market with the degree of detail that is suggested here or in the current proposal from Senators Feinstein and Snowe, then more resources will be required to build the team of regulators needed. Some would fund this through a fee applied to trades. I would suggest that another alternative exists in tapping the value from auctioned allowances. Either way, the legislation has the means to create the funds needed.

With respect to the regulator's vigilance, it is a challenge that this Committee can uniquely answer. Tight Congressional oversight will help ensure that the "cops remain on the beat." And some forethought might further benefit that oversight, as the Committee might ask for data about the market to be provided regularly so that it too can monitor the market.

4. Transparent data and strong quality controls

Finally, the government must ensure that the information regarding the allowances traded in the market is transparent, predictable and reliable. Information, in the end, is what enables you to turn emissions into a tradable item. It gives the market apples-to-apples confidence in the products, particularly since greenhouse gas emissions are not as tangible a commodity as oil or pork bellies.

---

[1] What exceptions should there be for non-standard instruments to be transacted OTC? One suggestion developed by Professor Vish Viswanathan at Fuqua School of Business and that will be published in his October paper is to use the post-trade reporting of non-standard instruments to determine when volume is sufficient to require the contract to be "printed and cleared" on an exchange. For example, if there was a large volume of swaps for, say, carbon versus Libor, then such contracts could be required to move to listed trading.

First, the government must regularly and predictably produce information about the nation's emissions to allow for the market to evaluate demand. A good example of an effective program in this regard is the U.S. Acid Rain cap-and –trade program administered by the EPA. That program focuses the majority of its enforcement efforts on the accurate tracking of emissions and allowances. EPA handles vast amounts of information; it processes information for compliance purposes and makes emission and allowance data accessible to facilitate an efficient allowance market which builds public credibility in the emissions trading program. The key is that the ARP relies on a common measurement metric through rigorous continuous emissions monitoring systems (CEMS) with quarterly reporting of hourly emissions.

An example of how the poor provision of government data temporarily undermined a market can be found in the European Union. In the E.U. Emissions Trading System, most emissions were not measured directly; they were determined by calculation based on fuel consumption, specified emission factors and the thermal efficiencies for combustion units and on output and other chemical and engineering estimates for process emissions. During the 3 year experimental phase in the EU ETS (2005-2007) a significant price decline occurred in April 2006 following the reporting of 2005 emissions data by several member states in amounts that were significantly less than expected.

The government also must provide the market with adequate assurances that the products traded in the carbon market are what they claim to be. With regard to the emissions allowances, this is simple and straightforward. The government will create, serialize and track the government-issued right to emit.

With regard to offset credits, however, the government's role is to provide adequate protocols and procedures to ensure the market that any carbon offset project is real and verified. In particular, for offsets markets to be successful and to contribute to emission mitigation goals, there must be confidence that offset reductions do in fact occur, that they can be properly quantified, that they are additional to what would have occurred without the project, and that any re-emission later (reversal) or induced uncontrolled emissions in other locations (leakage) are properly accounted. In doing so, the government must balance the need to provide quality assurance with the need to keep the costs of verification and monitoring low enough to attract investment in the projects.

Fortunately, I believe such a balance can be struck. In our work at the Nicholas Institute, we have engaged with producer groups, market participants, environmental advocates, and emitters to design policy that can provide environmentally valuable offsets at lower transaction costs. These efforts, first published in our report *Designing Offsets Policy for the U.S.*, continue as we strive to find the correct balance.

I also now serve on the board of the Climate Action Reserve, a national organization focused on providing regulatory-quality standardized protocols for the development, quantification and verification of greenhouse gas emissions reduction projects in North America; issuing carbon offset credits known as Climate Reserve Tonnes (CRT) generated from such projects; and tracking the transaction of credits over time in a transparent, publicly-accessible system. For the project types already approved by the Climate Action Reserve, I believe that the protocols have

struck this balance, for at least some project types, as evidenced by the strong investor interest in offsets projects using their program.

One final note – Accounting

While time does not permit a fulsome discussion of this issue, I would like to draw your attention to a short line in the U.S. Climate Action Partnership blueprint highlighting the need for "rational accounting" If a utility needs a futures contract as a bridge to a new low-carbon power plant – and their intention is to take delivery of the allowance at expiration to submit for compliance – should that utility have to mark the contract to market each quarter? Such a requirement should not be imposed lightly, since doing so would only encourage OTC hedging, or less risk management overall.

Conclusion

The market is very powerful tool, by which environmental objectives may be achieved at historically low costs. But the market also can fail, particularly if it does not have adequate provisions to ensure that transactions are fair and transparent. As I have testified, I believe the mechanisms exist to avoid such a failure.

Concerns about market abuses have nonetheless led some to conclude that now is not the time to create a new market. Let me posit that the exact opposite is true. If you choose to create a market, now is the best time to create a transparent, effective market that prevents excessive speculation and manipulation while allowing individual business leaders the flexibility to decide how to comply. The lessons from past market failures are fresh in our minds, and the public is attuned to the needs. If it wants to do so, Congress has all the tools it needs to create a well-functioning marketplace.

REFERENCES

Testimony of Jon A. Anda before the Subcommittee on Energy and the Environment, House Energy and Commerce Committee, April 24, 2009, *available at* http://energycommerce.house.gov/Press_111/20090424/testimony_anda.pdf

Justin Baker, et al., *The Effects of Low-Carbon Policies on Net Farm Income*, Nicholas Institute Paper NI WP 09-04 (2009)

Denny A. Ellerman and Paul L. Joskow, *"The European Union's Emissions Trading System in Perspective,* Pew Center on Global Climate Change (2008).

Richard F. Kosobud, Douglas L. Schreder, Holly M. Biggs, *Emissions trading: environmental policy's new approach* (2000).

Jonas Monast, Jon Anda, and Tim Profeta, *U.S. Carbon Market Design: Regulating Emission Allowances as Financial Instruments,* Nicholas Institute Paper CCPP 09-01 (2009)

Lydia Olander, *Designing Offsets Policy for the U.S.*, Nicholas Institute Paper NI R 08-01 (2008).

Testimony of Jon A. Anda before the Subcommittee on Energy and the Environment, House Energy and Commerce Committee, April 24, 2009, *available at* http://energycommerce.house.gov/Press_111/20090424/testimony_anda.pdf

Various Authors, *Mitigation Beyond The Cap: A Series of Briefs on Expanding Climate Mitigation Opportunities*, Nicholas Institute Policy Briefs, 08-01A, 08-01B, 08-01C, 09-03 (2008 and 2009)

Testimony of the

USA Rice Federation

and the

US Rice Producers Association

Before the U.S. Senate

Committee on Agriculture, Nutrition, and Forestry

To Review Global Warming Legislation: Carbon Markets and Producer Groups

September 9, 2009

Introduction

Chairman Harkin, Senator Chambliss, and members of the Committee, thank you for holding this hearing on climate change legislation and carbon market issues. We appreciate the opportunity to offer testimony before the Committee on Agriculture, Nutrition, and Forestry concerning rice industry views on climate change legislation.

My name is Frank Rehermann and I offer this testimony on behalf of the USA Rice Federation. I currently serve as chairman of the USA Rice Producers' Group and vice chairman of the USA Rice Federation and am a rice farmer from Live Oak, California. My wife and I operate our farm as a family partnership growing 800 acres of rice in the Sacramento Valley. I have been farming since 1972.

U.S. Rice Industry Overview

The USA Rice Federation is the global advocate for all segments of the United States rice industry with a mission to promote and protect the interests of rice producers, millers, merchants, and other allied businesses that comprise much of the multibillion dollar U.S. rice industry. The US Rice Producers Association represents rice producers in all 6 of our major rice producing states. Together, USA Rice and the US Rice Producers Association represent virtually the entirety of the U.S. rice industry – from farmers to processors to marketers to exporters. The rice industry provides jobs and income for not only producers and processors of rice, but for all of these parties in the value chain.

Rice is planted on about 3 million acres in six states, including Arkansas, California, Louisiana, Mississippi, Missouri, and Texas. The U.S. rice industry is unique in its ability to produce all types of rice, from long grain, medium grain, and short grain, to aromatic and specialty varieties. Last year, U.S. farmers produced a rice crop of nearly $3.4 billion in farm gate value.

Today, about 81 percent of all the rice that is consumed in the U.S. is produced here at home. And, despite U.S. and foreign trade barriers to U.S. rice exports, the U.S. remains the largest non-Asian exporter of rice and the third largest exporter worldwide. On average, between 40 to 50 percent of the U.S. annual crop is exported as either rough or milled rice.

The United States' top export markets for rice include Mexico, Japan, Iraq, Haiti, Canada, and most of Central America. In 2008 we exported over $2.2 billion in rice to markets around the world.

Americans consume 25 pounds of rice per person per year. Of the rice produced by our farmers that remains in the domestic market, 53% is bound for direct human food use and 16% dedicated to processed foods, 15% for beer, 14% for pet food, and the remaining for industrial uses.

The 2005 Dietary Guidelines and MyPyramid recommendation, published jointly by the Departments of Agriculture and Health and Human Services, call for 5 to 10 servings of grains daily, with half the servings coming from whole grains, such as brown rice, and 45 to 65 percent of calories coming from complex carbohydrates, such as rice. Rice is a wholesome source of nutrition, with no sodium, no cholesterol, no glutens, and no trans or saturated fats.

Beyond the substantial economic and nutrition benefits of rice is the environmental dividend from winter-flooded rice fields that provide critical habitat for migratory waterfowl and other wetland-dependant species. All the major rice-production areas in the U.S. correspond with important areas of waterfowl activity during winter months. Rice-growing areas provide surrogate habitats for hundreds of wildlife species that rely on wetland conditions for species survival, some of which are currently or could be threatened if not for the wetland environments provided by flooded rice fields. Without rice farming, wetland habitats in the U.S. would be vastly reduced. A loss of this magnitude would have a disastrous effect on waterfowl, shore birds, and a host of other wetland-dependant species.

Rice Industry Concerns with Climate Change

The climate change legislation pending before Congress is not supported by the U.S. rice industry. With respect to the American Clean Energy and Security Act (H.R. 2454) that narrowly passed the U.S. House of Representatives earlier this summer, we supported the efforts of House Agriculture Committee Chairman Collin C. Peterson and other Members of the House who worked to mitigate the bill's adverse impacts on agriculture. But neither of our organizations supported passage of the bill as amended.

Unfortunately, despite these efforts, the costs of this legislation still heavily outweigh any potential benefits, leaving us no choice but to strongly oppose the legislation. Simply put, at a time when America's rice farmers are already facing significant production costs and are forced to compete on an uneven global playing field, climate change legislation would add insult to injury.

One of the key areas of focus in our analysis of the legislation has been the impact on rice production costs as a result of higher costs for major inputs such as fuel, electricity, fertilizer, natural gas, and propane. Rice is flood irrigated, requiring energy to pump either ground or surface water. In addition, rice is a high yielding crop utilizing nitrogen fertilizer which, in turn, is made using natural gas. Furthermore, all rice must be dried before it can be stored. Finally, beyond the increased costs of field production, U.S. rice must also be milled before it can be consumed or utilized in products. All of these already significant costs are expected to substantially increase, both in the short and long term, under climate change legislation and this does not take into account increased transportation costs and other costs due to rise as a result of this legislation.

Increased input costs will make us less competitive vis-à-vis our major global competitors, such as Vietnam, Thailand, Pakistan, and India, who already benefit from heavy government involvement in their rice production. Congress should not approve legislation that will have the effect of shifting rice production overseas to foreign competitors that are made the lower cost producer solely because of the policies of our own government. Such a move would result in the loss of thousands of American jobs in the rural areas of the Mississippi Delta, the Louisiana and Texas Gulf Coast, and the Sacramento Valley of California. These areas rely, to a large extent, on the U.S. rice industry to support their local economies and jobs. Shifting our agriculture production overseas and becoming dependant on other countries for food production will only threaten our nation's food security.

Regarding the role that U.S. agriculture can play in reducing greenhouse gas emissions, while, in the net aggregate, U.S. agriculture sequesters more greenhouse gases than it emits, there are currently few, if any, opportunities for rice production to further sequester or reduce greenhouse gases.

That is not to say that due diligence is not being done to investigate ways in which rice might meaningfully contribute to greenhouse gas sequestration or reduction in the future. In fact, work is currently underway in California to develop computer-modeling techniques to quantify greenhouse gas emissions. Once complete, this model will also predict the greenhouse emissions response to certain changes in cultural practices. Current pilot-scale activities are being implemented to evaluate potentially beneficial activities. Both implementation challenges and impacts on yield and production costs will be evaluated to see if any ideas are ultimately deemed feasible.

If efforts in California are successful, greenhouse gas sequestration and reduction would be added to the long list of contributions to conservation already provided by rice producers including the provision of wetlands for hundreds of wildlife species as well as migratory birds in the Mississippi, Central, and Pacific flyways. We are simply not there yet on sequestration.

So, we are confronted with no economic upside under pending climate change legislation and plenty of economic downside. For instance, a recent analysis by the Agricultural and Food Policy Center at Texas A&M University estimates that due to the increase in input costs for rice and the likelihood of no opportunity to participate in an offset credit program at this time, all 14 representative rice farms analyzed would experience lower average annual net cash farm income ranging from $30,000 to $170,000 in reductions per operation. Annual costs for these farms increase from $20,000 to $120,000 during the 2010 to 2016 period. And while the commodity price is expected to increase slightly it is not enough to make up for the significant cost increases. The American Farm Bureau Federation also estimates that the ***increase*** in rice production costs per acre could reach as high as $153.00. That's not the difference between a large profit and a lean profit. That's the difference between break even and broke.

At a time when U.S. farm income is already projected to be down 38% from last year and given the condition of the U.S. economy overall, we are deeply concerned about where this legislation would position us in the global economy, particularly since it is highly unlikely that our key global competitors will impose an equally rigorous regulatory regime on their own industries if our past trade agreements are any indication. In fact, recent reports that some in the developing world are calling on developed nations to make sharp reductions in greenhouse gas emissions while insisting that they not be bound to any specific level of reductions is ominously familiar to those of us closely observing WTO Doha Round discussions.

As such, we would strongly urge the Members of this Committee to fully evaluate alternative approaches to curbing greenhouse gas emissions and to oppose pending or similar climate change legislation. In this vein, we wish to express our gratitude to the Members of this Committee who have urged that the cap and trade provisions of climate change legislation be dropped entirely. To be sure, there are ways to reduce greenhouse gas emissions and reduce our dependence on oil-exporting countries without crippling the U.S. economy. Focusing on energy

efficiency measures and additional renewable and clean energy development are just a few of these avenues.

Recommendations to Improve Climate Change Legislation

If, however, pending or similar climate change legislation is ultimately considered in the Senate, we believe there are several key provisions that must be clearly and explicitly included in the bill to help ensure U.S. agriculture is not irreparably injured in the process. These key provisions include:

- An express exemption should be provided for the agriculture sector from the greenhouse gas emission reduction requirements of the climate change legislation and the underlying Clean Air Act.

- The definition of "agriculture sector" for purposes of this exemption should be clarified to include production through the stage of processing ordinarily necessary for the commodity to be widely marketed in commercial channels.

- Increased funding should be provided for research programs and activities by USDA and the land grant university system to develop improved production and management practices and technologies to help agriculture sequester greenhouse gas emissions, with a particular focus on research for those crops that currently have little or no opportunity in this regard.

- Establishment of a program using the funds and authorities of the Commodity Credit Corporation to compensate producers for increased input costs.

- Establishment of a robust agricultural offset program that is flexible and run entirely by USDA, not the EPA.

Conclusion

In conclusion, on behalf of the U.S. rice industry, I strongly urge this Committee to work with the Senate leadership to postpone consideration of climate change legislation until such time that alternative legislative approaches to curbing greenhouse gas emissions are developed which do not injure American agriculture or the U.S. economy, generally. If this effort is unsuccessful, then we respectfully request that this Committee work with the other committees of jurisdiction and your Senate colleagues to ensure that the provisions provided above are included in any climate change legislation that is enacted into law. We believe that, without these provisions, the current approach to climate change would be catastrophic to American agriculture.

Thank you for the opportunity to provide our views. I would be happy to respond any questions.

Statement of
Julie Winkler,
Member of the Board of Directors, Green Exchange Venture
Before the
Senate Committee on Agriculture, Nutrition and Forestry
Hearing on Regulating Carbon Markets
in a Cap-and-Trade System

September 9, 2009

I am Julie Winkler, Managing Director of Research and Product Development of CME Group Inc. ("CME Group") and Member of the Board of Directors of the Green Exchange LLC. The Green Exchange Venture appreciates the opportunity to provide its views to the Senate Committee on Agriculture, Nutrition and Forestry regarding the design and regulation of a U.S. carbon market.

We believe that cap-and-trade is the preferred solution for guaranteeing emissions reductions at the lowest possible cost to the economy. We strongly support providing compliance entities with a choice of utilizing exchange traded derivatives and over-the-counter ("OTC") instruments with additional transparency to meet their environmental obligations. Also to provide these customers with effective risk management tools and liquidity, the U.S. carbon markets must allow for broad market participation. We believe that the Commodity Futures Trading Commission ("CFTC") is best suited as the regulator of the U.S. carbon market and they will ensure a transparent and effectively regulated carbon market. Lastly, to ensure the use of transparent markets and central clearing services and the necessary liquidity and price discovery they provide, regulatory proposals should not include a transaction tax on carbon derivative exchanges.

Green Exchange Venture

CME Group is a founding member of the Green Exchange Venture along with Evolution Markets, Credit Suisse, Goldman Sachs, JP Morgan, and Morgan Stanley. The founding members are joined by partner firms from across the energy, environment, and financial sectors: Constellation Energy, ICAP, RNK Capital LLC, Spectron, TFS, Tudor Investment Corp. CME Group currently provides the electronic trading platform, Central Counterparty Clearinghouse ("CCP") services, market data distribution, and regulatory services to the Green Exchange Venture. CME Group is the world's largest and most diverse derivatives marketplace and through its subsidiaries operates four separate Exchanges: Chicago Mercantile Exchange Inc. ("CME"), the Board of Trade of the City

of Chicago, Inc. ("CBOT"), the New York Mercantile Exchange, Inc. ("NYMEX") and the Commodity Exchange, Inc. ("COMEX").[1]

CME also operates CME Clearing, one of the largest central counterparty clearing services in the world, which provides clearing and settlement services for exchange-traded contracts, as well as for OTC derivatives contracts through CME ClearPort®. CME ClearPort provides clearing services to eligible participants, mitigates counterparty risk and brings OTC transactions within the regulatory oversight of the CFTC.

While the Green Exchange Venture was formally launched as a standalone entity this year, CME Group and the other Green Exchange Venture partners bring more than a century of experience in building markets to meet the risk management needs of commercial and financial participants.[2] The Green Exchange Venture member firms have been actively involved in designing and participating in all major environmental markets around the world, including U.S. emissions cap-and-trade programs for sulfur dioxide ("SO_2") and nitrogen oxide ("NO_x"), the global renewable energy trading markets, the European Union ("EU") Emissions Trading System ("ETS"), and the global carbon offset market.

Following CFTC review and approval of our application for contract market designation[3], the Green Exchange product slate will include futures and options on European Union Allowances ("EUA"), Certified Emission Reductions, SO_2 Allowances, NO_x Allowances, and Northeastern Regional Greenhouse Gas Initiative Allowances (RGGI). These environmental contracts are highly flexible financial instruments useful to qualified market participants to meet their risk management needs. As an example, our EUA futures contract represents one-thousand EUA allowances, equaling one ton of emissions. Our product slate will also be expanded to include derivatives based on a U.S. cap-and-trade program if such legislation is approved. Until the contract market designation is obtained by Green Exchange, environmental futures and options products are trading on the NYMEX through the CME Globex® electronic trading platform and listed for clearing on CME ClearPort.

---

[1] The CME Group Exchanges offer the widest range of benchmark products available across all major asset classes, including futures and options on futures based on interest rates, equity indexes, foreign exchange, energy, metals, agricultural commodities, and alternative investment products.

[2] The CBOT became involved in the U.S. emissions market in 1993 when it was chosen by the Environmental Protection Agency (EPA) to administer the SO_2 auctions. After an objective selection process, the CBOT was chosen to run the auctions because of its demonstrated ability in handling and processing financial instruments and using transactional information systems. The CBOT was not compensated for these services by EPA and administered this innovative auction in partnership with the EPA for 12 years.

[3] Upon approval as a Designated Contract Market (DCM), the Green Exchange Venture will become a self-regulatory organization (SRO) with frontline market and trade practice surveillance responsibilities, subject to oversight by the CFTC. As an SRO, the Green Exchange Venture will be required to adopt and enforce rules to effectuate 18 core principles. It will be required to monitor trading activity, enforce rules, take appropriate disciplinary action, monitor deliverable supplies, detect and deter manipulation, among other things to ensure the integrity of the markets.

Lastly, we are actively engaged in discussing the U.S. climate policy; the CME Group was recently invited to join the Pew Center on Global Climate Change's Business and Environmental Leadership Council – a partnership of 45 companies including Fortune 500 energy, manufacturing, and other companies. We believe that our insights from other markets and our understanding of the policy debate surrounding the creation and oversight of environmental markets, provides a crucial perspective on the carbon market policy discussion.

Reducing Emissions through a Cap-and-Trade System

Scientists believe that climate change is a global threat that requires a response to bring about substantial reductions in carbon dioxide and other greenhouse gas ("GHG") emissions. According to the 2007 Intergovernmental Panel on Climate Change ("IPCC") report, the global average temperature could rise by 2.4-6.4°C by the end of this century if no corrective action is taken.[4] This would lead to serious consequences from both an environmental and economic perspective for developed and developing countries.

A market-based solution, such as a cap-and-trade program, offers the best opportunity to minimize the cost of mandatory reductions in GHG emissions. The U.S. Climate Action Partnership ("USCAP"), an alliance of major businesses and leading climate and environmental groups, has stated that "cap-and-trade is essential" and "allows the economy-wide emission reduction target to be achieved at the lowest possible cost."[5] In a cap-and-trade system, one allowance would be created for each ton of GHG emissions allowed under the declining economy-wide emission reduction targets (the "cap"). Those emitters who can reduce their emissions at the lowest cost would have to buy fewer allowances and may have extra allowances to sell to remaining emitters for whom purchasing allowances is their most cost-effective way of meeting their compliance obligation. Like USCAP, leading environmental and nature resource groups such as the Natural Resource Defense Council, Environmental Defense Fund and the Pew Center on Global Climate Change are supporting U.S. cap-and-trade.[6] Additionally, agriculture organizations such as National Farmers Union also view cap-and-trade as the preferred approach for reducing emissions.[7]

Cap-and-trade in the U.S. is not a new mechanism as the U.S. was the global leader in utilizing a market-based solution to establish the Acid Rain Program under the 1990 U.S. Clean Air Act Amendments. The SO_2 trading system has been regarded as an innovative solution, which is achieving its stated goals of reducing overall atmospheric

---

[4] IPCC. "Climate Change 2007: Synthesis Report." Published by the IPCC on Climate Change. 2008.
[5] USCAP. "A Call to Action. Consensus Principles and Recommendations from USCAP: A Business and NGO Partnership." 2009.
[6] Environmental Defense Fund. "The Case for Cap-and-Trade." July 23, 2009.
[7] Testimony of Roger Johnson, President, National Farmers Union. "Concerning the Role of Agriculture and Forestry in Global Warming Legislation" before the Senate Committee on Agriculture, Nutrition and Forestry on July 22, 2009.

levels of SO_2 and NO_x.[8] The EPA also estimates that by 2010, the overall compliance costs to businesses and consumers will be $1-2bn per year, one quarter of the original one quarter of the originally predicted cost.[9]

In January 2009, ten Northeastern and Mid-Atlantic States launched the first mandatory, market-based effort in the United States to reduce GHG emissions called the Regional Greenhouse Gas Initiative (RGGI). This program aims to reduce capped CO_2 emissions from the power sector and will require a 10 percent reduction in these emissions by 2018. Alongside the allowances and offsets trading in the RGGI program, there are both derivative and OTC contracts being traded by market participants.

In the EU, the ETS is the largest cap-and-trade program in the world currently covering more than 12,000 installations in the energy and industrial sectors, which account for approximately 40% of the EU's emissions of CO_2 and other GHGs. Since 2005 when the first trading period for ETS began, transaction volumes have grown by almost ten times. [10] With respect to carbon emissions, initial evidence from the EU ETS demonstrates that leading companies subject to the caps are utilizing the carbon markets to effectively reduce emissions. According to a July 2009 Global Carbon Trading Study, it is estimated that global carbon trading could reduce the cost of emissions reductions by up to 70% in 2020 compared to a carbon cap without a trading component.[11]

Cap-and-trade programs are proving that they can successfully cut emissions with efficiency and cost effectiveness. Emissions trading systems are already operating or planned in over 35 countries in the developed world.[12] Clearly, the global carbon trading is expanding rapidly and the U.S. would not want to miss the opportunity to play a defining role in this market's growth.

Cap-and-Trade Design Features

There are several design features that are critical to a well-functioning cap-and-trade system such as establishing an accurate emissions baseline, determining how allowances are to be auctioned or distributed, and collecting and disseminating market data. Based on our extensive market development experience, the Green Exchange Venture partners also strongly believe that a cap-and-trade system must include broad market participation and not be constrained by artificially created carbon price constraints.

---

[8] Between 1990 and 2007, SO2 emissions decreased by 43% and the 2010 emissions target was reached three years early.

[9] Ellerman, A. Denny and Paul L. Joskow. "The European Union's Emissions Trading System in Perspective." Prepared for the Pew Center on Global Climate Change. May 2008.

[10] Ellerman, A. Denny and Paul L. Joskow. "The European Union's Emissions Trading System in Perspective." Prepared for the Pew Center on Global Climate Change. May 2008.

[11] Lazarowicz, Mark. "Global Carbon Trading – A Framework for Reducing Emissions." Prepared for the United Kingdom Prime Minister. July 2009.

[12] Current ETSs in production and under development in other countries plan to result in 17-35% reductions in global emissions being covered under these programs by 2015.

For a cap-and-trade system to work effectively, the carbon market must have participation beyond compliance entities. A market that includes liquidity providers such as financial intermediaries and offset aggregators from the onset will ensure that buying and selling occurs on a routine basis as various market participants express different views on the market. These types of participants also provide essential market services to their clients, compliance entities, by assisting in managing price risk, providing financing for emissions reduction activities, and in general engaging in large-scale capital deployment which can reduce compliance costs.

Government imposed price floors or ceilings should be avoided if a carbon market is to play its role in creating meaningful price discovery. Price caps reflect factors extraneous to the fundamental factors that drive prices, and thus are not connected to actual supply and demand. While it may seem that artificially constraining prices with a ceiling will reduce price volatility or market manipulation, the opposite is likely to result. With a ceiling derived from non-market based factors lying idle above a market price, the free flow of buying and selling can be overshadowed by the knowledge that there is a flood of allowances to be unleashed at the ceiling price. The reverse could take place at price levels close to a floor, where demand automatically and arbitrarily surges.

A price cap would not only interfere with the generation of a meaningful market price for carbon, it would also discourage low-carbon energy and agricultural offset investors from participation in the market since they would be unable to benefit from increased prices for offset credits. Lastly, a price cap would interfere with the maturing of a global carbon market since if implemented in one jurisdiction and not others, it will distort pricing relationships.

We fully understand the motivation to protect American consumers from dramatic increases in the cost of carbon, however, the dynamics associated with price floors and ceilings would undermine the overarching intent of a cap-and-trade program.

The Functions of Cash and Derivatives Markets for Carbon Trading

If a federal cap-and-trade program is enacted by Congress, a price on carbon will become a new input cost for the energy and industrial sector and a new revenue source for agricultural offset providers who supply carbon offsets into the market. The carbon price will fluctuate as market participants' perceptions of the supply and demand balance of allowances, as well as the cost of compliance alternatives, evolve over time. The two primary markets created will be: 1) a cash market to allow for the trading of allowances and offset credits; and 2) the derivatives market to allow for the trading of allowance and offset derivatives.

Allowance supply is determined by the government imposed cap and therefore is unlike most commodities. This is unlike existing and more mature commodity markets where supply is determined from various entities and external factors. Confidence in

market integrity is crucial both to effective functioning of the market and ongoing support of a market approach among both policy makers and the general public. Therefore, an essential component of the cash carbon market will be a robust registry system to track creation, ownership and retirement of allowances and offsets credits. Registries play an important role in ensuring market integrity, tracking progress toward environmental goals, and facilitating delivery for environmental commodities.

As a complement to the cash market, allowance derivatives contracts such as futures offered by the Green Exchange Venture will enable capped entities to manage U.S. carbon price movements and deploy capital for new energy projects with a greater level of certainty. For example, a risk manager working for a compliance entity, who knows she will need to purchase allowances for compliance at a specific time in the future, can lock in a price by purchasing the appropriate number of carbon futures contracts on the exchange. If the price rises, the manager will pay a higher price for the actual allowances in the cash market, but will earn a corresponding and offsetting profit on the futures position.

In addition, buyers of futures contracts can, if they choose to, take delivery of the cash allowances by holding the position until contract expiration. In this case, the buyer may be able to contract for a future supply of allowances at a lower price than what might be available upon eventual delivery, thereby lowering compliance costs. These deliveries are managed by the clearinghouse, which maintains an account with the emission registry involved in the delivery process.[13]

A compliance entity who anticipates having an excess of cash allowances as a result of the firm's efficiency in reducing emissions below its cap, can lock in a price in advance by selling futures contracts in the appropriate amount. A seller of the futures contract also can maintain their short position and deliver allowances against the contract.

The Role of Futures Exchanges, CCP Solutions and Regulators in a U.S. Carbon Market

Futures markets perform two essential functions–they create a transparent venue for price discovery and they permit low cost hedging of risk. Futures markets depend on a broad universe of market participants with both short and long term expectations to make markets and provide liquidity for hedgers. By offering trading of U.S. emission derivatives on electronic trading platforms, we believe exchanges will enhance price transparency, speed execution, and eliminate many classes of errors and mismatched trades, contribute significantly to liquidity, and will generally be beneficial to the market.

Electronic trading of exchange traded emission derivatives coupled with a comprehensive CCP solution such as the one offered by CME Clearing and utilized by the Green Exchange Venture, will reduce risk and uncertainty for carbon market participants. CME Clearing has provided clearing services for the futures industry for

[13] The clearinghouse also guarantees the integrity and completion of delivery of the allowances.

over a century without a single default and has an industry-leading financial safeguards package of over $7 billion that is designed for the benefit and protection of both clearing members and their customers.[14]

Electronic trading and CCP solutions will also provide a trustworthy and timely audit trail for regulatory purposes. In providing market and trade surveillance services to the Green Exchange Venture, the CME's dedicated and highly trained regulatory staff will implement audit and compliance programs to monitor existing markets for fraud and manipulation. Through advanced technology tools, we have an audit trail that allows us to effectively identify anyone who engages in misconduct. CME also has a reliable means to provide transaction data to the CFTC and these are divided into five broad categories: trade data, time and sales, order data, volume and open interest data and reference data. CME currently reports cleared trade data (pit, electronic, and ex-pit transactions) on a daily basis to the CFTC.

Over the past year, CME worked closely with the CFTC and other exchanges to transition to standardized trade data reporting to the CFTC.[15] These data files provide critical and timely data to the CFTC and the Green Exchange Venture is committed to continuing this practice for trading activity in our emissions products. Additionally, the CFTC receives large trader positions directly from each clearing firm on a daily basis to monitor activity and prevent market manipulation.

The CFTC assures the economic utility of the futures markets by encouraging competitiveness, protecting market participants against fraud, manipulation, and abusive trading practices, and by ensuring the financial integrity of the clearing process. Through effective oversight, the CFTC enables the futures markets to serve the important functions of price discovery and hedging price risk. To ensure the adequacy of exchange SRO programs, the CFTC conducts routine rule enforcement reviews of each futures exchange. In the context of the rule enforcement reviews, the CFTC reviews the exchanges' trade practice and market surveillance programs, disciplinary programs and audit trail. These reviews are comprehensive and the findings and recommendations are public documents.

We believe that because of the CFTC's established expertise and coordination within the global derivatives industry, it is in the best position to provide strong regulatory oversight to a mandatory U.S. cap-and-trade market. We applaud the efforts of this Committee and the Administration to ensure that a mandatory U.S. GHG cap-and-trade program will enhance transparency, integrity, efficiency and fairness in the markets.

---

[14] The CME Clearinghouse currently holds more than $100 billion of collateral on deposit and routinely moves more than $5 billion per day among the CME Clearinghouse and its clearing firms. It conducts real-time monitoring of market positions and aggregate risk exposures, twice-daily financial settlement cycles, advanced portfolio-based risk calculations, monitors large account positions, and performs daily stress testing.

[15] Earlier this year, the CME and CBOT became the first exchanges to begin reporting trade data using the FIXML Trade Capture Report format to the CFTC.

Price Transparency and Market Data Distribution

Another important aspect to an effective cap-and-trade program is access to price data for market participants, emitters, regulators, and the general public. Our real-time futures price data is disseminated to approximately 400,000 real-time data subscribers through 40 directly connected quote vendors and an additional 200 licensed vendors[16]. The technology employed allows for real-time market data to be disseminated in 5-10 milliseconds from the time it leaves our electronic trading system. Additionally through www.cmegroup.com, we provide free, delayed price quotes for all of our futures products.[17] We strongly believe that the existing market data infrastructure, standard FIX/FAST formats, and reliability of our quote distribution technology, can provide the price transparency required to support the U.S. carbon market. This data feed can also facilitate the real-time transfer of price data to regulators with very little additional effort or cost. In our view, creating a new infrastructure for this purpose for the carbon market would be complex and costly for federal government and participants alike, which could be ultimately detrimental to establishing U.S. leadership in addressing global environmental challenges.

OTC Transactions

As beneficial as exchanges and clearinghouses will be to the formation of an effective U.S. carbon market, they will not meet all of the needs of companies seeking to meet their compliance targets. Although the Green Exchange Venture and other emissions trading platforms would likely be the presumed beneficiaries if all transactions were required to be executed on electronic trading platforms, we do not believe such a requirement would be in the best interest for a U.S. cap-and-trade program to meet its goal of cost-effectively reducing emissions.

We believe that both exchange-traded and OTC derivatives markets are essential to the efficient functioning of a U.S. carbon market. Together, these markets can provide compliance entities with the ability to increase the certainty in their future cash flows by protecting against price risks and effectively managing their capital, thereby increasing their confidence and ability to act and reducing their overall cost of compliance. Given the multitude of unique contracts traded in the OTC market and the specialized customer needs, we strongly believe that customers must be given the ability to access both exchange traded derivatives and OTC markets, if they are to effectively manage their price risk. A government mandate for exchange trading of standardized contracts as a replacement for this bespoke market will increase costs for entities with compliance obligations, and impede the ability of developers of both projects and new technologies to obtain financing on reasonable terms.

---

[16] This data is sent on behalf of the four exchanges operated by CME Group, which include CME, CBOT, NYMEX and COMEX. CME also handles market data distribution and licensing administration services for the Green Exchange Venture.

[17] In August 2009, www.cmegroup.com received approximately 9.2 million hits per day and 43% of these hits viewed quote pages for commodity products.

The OTC market complements standardized exchange traded products by providing products customized to a regulated entity's emissions and time horizon. Such customization is necessary for successful financing of carbon offset projects, and for structuring long-term hedging transactions that underpin investments in emissions reduction or clean energy technologies[18]. OTC arrangements are particularly crucial for financing carbon offset projects and the sale in the first instance of the created carbon offsets. Primary offset creation contracts provide the supply of offsets necessary to help contain the costs of a climate program for American consumers. Each of these carbon offset creation contracts is unique, and their customized nature lends itself to the OTC market, not exchanges.

Another example of a vital customized transaction for U.S. carbon markets would be long-term structured transactions. These transactions hedge price risk associated with investments in emissions reduction and clean energy technologies. Companies financing such investments base the repayment of loans, in part, on the cost of carbon allowances or offsets. This leaves such financing vulnerable to swings in carbon prices, which is a risk that must be hedged for financing to take place. Again, such transactions are specific to each investment and are often of such long duration that they cannot be effectively traded on an exchange.

Finally, OTC markets support the healthy functioning of exchanges themselves. Historically, products that are today traded on exchanges have started as OTC products. It is only after an OTC product achieves a degree of standardization and attains a critical mass of acceptance that it meets the qualifications for listing on an exchange. Eliminating OTC transactions could cause damage and disruption to the evolution of standardized exchange traded products.

While some types of customized transactions must be conducted OTC, the natural tendency of the majority of trades will be to gravitate to exchanges, and to utilization of clearing services, with or without any legal requirement to do so. Carbon market participants will be attracted to trading platforms that provide the highest level of liquidity and transparency, the best risk management opportunities, and highest level of financial assurance. This is currently being seen in the functioning carbon market in the EU. Carbon trading in the EU ETS began with transactions taking place exclusively OTC. In relatively short order, exchange-traded products developed. Over the last two years a distinct trend has emerged with increased liquidity on carbon exchanges and enhanced use of CCPs. According to market participants, it is estimated that over 40% of ETS EUA futures contracts are exchange traded and a predominance of OTC transactions are cleared through CCPs. All of this is occurring without any legal or regulatory requirement to do so. The EU example demonstrates not only the importance of

[18] Exchange cleared transactions require posting of collateral so for some entities, the OTC market can provide more flexible financing arrangements that provide needed financial security without requiring cash. An easy to understand example would be taking a lien, or "mortgage" against the physical assets of a counterparty. This "cashless" form of collateral can be of great benefit to a project developer, a manufacturer developing a new technology, or even an established business needing to conserve cash.

exchanges in carbon market trading, but also the vital role that OTC markets play in the market's initial development – and its continued importance for customized transactions.

Improved Transparency in OTC Carbon Markets

Our view is that efficiently functioning derivative markets are essential to risk management, and that it is entirely appropriate to focus on how to improve the efficiency and security of the OTC derivative market. CME Group and the Green Exchange Venture are strong proponents of the benefits of centralized clearing of OTC derivatives as an effective means of reducing systemic risk while at the same time collecting and providing timely information to regulators. Our view derives from considerable experience acting as a central clearing party for exchange traded derivatives, and more recent experience acting in the same role for OTC derivatives based on energy and agricultural commodities.

While OTC transactions must be present in a carbon market for cap-and-trade to be fully successfully, the OTC carbon market must provide a greater level of transparency than what is currently present in some other OTC markets. We support position reporting for carbon-related OTC transactions to provide enhanced transparency. Indeed, as part of its special call reporting; the CFTC already requires extensive reporting of OTC commodity derivative positions. This framework can be leveraged and extended to include new carbon derivatives. We also recognize that this Committee, the Administration, and others are evaluating regulatory changes to the broader OTC derivatives market. We believe that any regulatory framework created for the U.S. carbon market should be crafted to be consistent with regulatory changes that may be made to the broader OTC derivatives markets.

Ensuring the Cost Effectiveness of Carbon Trading and Clearing

In effectively regulating a potentially large carbon market, the CFTC may need additional resources. However, the Committee should resist any proposal to add a transaction tax to carbon derivatives transactions. A transaction tax would directly increase the cost of doing business for the compliance entities and essential liquidity providers that will use carbon derivatives. This tax will expose them to the choice of trading on the exchange at a profit level that is unjustified for the risks assumed and likely result in them trading elsewhere. The exit of market participants will mean decreased efficiency of the futures markets, more price volatility and less opportunity for other market participants to make effective use of futures markets. Moreover, futures markets provide significant benefits to market users and to persons seeking meaningful information on future pricing in order to guide their decision making on clean energy investment and offset development. More depth and liquidity in a carbon futures market will lead to better price discovery. Any impairment of liquidity lessens the value of the information and the functioning of our markets.

A transaction tax will also discourage the use of centralized clearing. At a time when the markets are searching for increased transparency and safeguards, a transaction tax applied to the settlement of derivative contracts cleared by a Derivatives Clearing Organization (DCO), would essentially penalize those using a regulated U.S. DCO and discourage the growing use of CCP solutions. This is in direct conflict with the Administration's goal of improving the role of regulators in monitoring systematic risk.

We recognize the need to ensure that CFTC has adequate resources to effectively oversee a potentially sizable carbon market, but we strongly believe that a transaction fee on derivatives will discourage the use of the risk management tools available on transparent exchanges which will ultimately drive up the costs of a cap-and-trade program through diminished liquidity and decreased price signals.

Conclusion

Cap-and-trade is the most efficient approach to significantly reducing emissions. Entities such as the Green Exchange Venture will provide capped entities and other market participants with the venue to safely and securely manage their carbon price risks. Such exchanges and CCPs should be unimpaired from transaction taxes that could damage liquidity and discourage their use. Regulated exchanges, CCP solutions, and the CFTC, will provide a high level of transparency to the U.S. carbon markets. This existing transparency combined with added transparency to the OTC market will ensure a well-functioning carbon market that will enable compliance entities to meet their environmental obligations and agricultural and forestry offset developers to fully participate in the carbon market.

Committee on Agriculture, Nutrition and Forestry
United States Senate

Hearing on

Global Warming Legislation:
Carbon Markets and Producer Groups

Testimony of

Fred Yoder
National Corn Growers Association

September 9, 2009

Chairman Harkin, Ranking Member Chambliss and distinguished members of the Committee, thank you for the opportunity to testify today on behalf of the National Corn Growers Association (NCGA) regarding carbon markets. I applaud the committee's efforts to focus attention on the important role the agriculture industry has in the area of climate change and the issues facing rural America.

The National Corn Growers Association represents more than 35,000 corn farmers from 48 states as well as more than 300,000 farmers who contribute to corn check off programs and 26 affiliated state corn organizations across the country. The mission of NCGA is to create and increase opportunities for corn growers and to enhance corn's profitability and use.

My name is Fred Yoder, and I am a past president of NCGA. I grow corn, soybeans and wheat near Plain City, Ohio and have been an active participant in climate change discussions for many years. In December, I had the opportunity to attend and participate in the United Nations World Climate Conference in Poland where I was able to discuss the role of agriculture in reducing greenhouse gas emissions. In addition to being part of NCGA's efforts, I serve on the boards of numerous ad hoc groups, including the 25x25 Carbon Working Group and the Ag Carbon Market Working Group.

We are pleased that the Senate Agriculture Committee is actively involved in the climate change negotiations in Congress. Agriculture should be considered a significant part of the broader solution as we evaluate ways to reduce greenhouse gas emissions. Our nation's corn growers should have the opportunity to make significant contributions under a market based cap and trade system through sequestering carbon on agriculture lands. In fact, numerous economic analyses have indicated that a robust offset program will significantly reduce the costs of a cap and trade program for consumers.

In the near term, greenhouse gas reductions from livestock and agricultural conservation practices are the easiest and most readily available means of reducing greenhouse gas on a meaningful scale. The United States Environmental Protection Agency (EPA) estimates that agricultural and forestry lands can sequester at least 20% of all annual greenhouse gas emissions in the United States.

Further, agricultural producers have the potential to benefit from a properly crafted cap and trade program. Given these opportunities, it is critical that any climate change legislation seeks to maximize agriculture's participation and ensure greenhouse gas reductions while also sustaining a strong farm economy.

For years, corn growers along with the rest of the agriculture industry have adopted conservation practices such as no till or reduced tillage, which result in a net benefit of carbon stored in the soil. In fact, on my farm, I engage in both no till and reduced tillage. Also, for the past five years, I have worked with my state association, the Ohio Corn Growers, on a research project with Dr. Rattan Lal of Ohio State University on soil carbon sequestratio. As part of our efforts, we have on-farm research plots at six different locations to study various soils and their carbon capture capabilities. I have

been actively engaged from the beginning in defining the research protocols. This is only one example of the groundbreaking work our industry is undertaking.

NCGA has identified several priorities which I believe are critical elements to the agricultural sector within cap-and-trade legislation. We have worked closely with others in the industry to identify key principles which have been embraced by a broad cross-section of the agriculture community. A number of these priorities were addressed in the final House passed version of H.R. 2454. NCGA currently has a neutral position on the legislation while we conduct an economic analysis of the House passed bill. We expect to have preliminary results of our study in the coming weeks, which will better explain the potential cost increases and income opportunities for corn production under a cap-and-trade system.

First, NCGA supports the decision by the House of Representatives to exclude agriculture from an emissions cap, and we urge the Senate to maintain this important exemption. Any efforts to regulate greenhouse gas emissions from America's two million farms and ranches would be costly and burdensome, resulting in limited reduction of greenhouse gas emissions. Our industry accounts for only 7% of emissions in the overall economy. Therefore, it would seem unreasonable to concentrate on regulations for such a small and diffuse industry.

However, tremendous environmental benefit can be achieved by allowing producers to provide low-cost, real and verifiable carbon offsets. Congress should fully recognize the wide range of carbon mitigation or sequestration benefits that agriculture can provide. This could include sequestration of carbon on agricultural lands, reduction of emissions from livestock through dietary improvements and manure management, introduction of nitrogen and other fertilizer efficiency technologies and a variety of other practices.

In addition, agricultural offsets have the ability to significantly lower the cost of a cap-and-trade system while achieving real greenhouse gas emissions. Corn growers and other producers can provide the offsets needed to allow changes in energy production technologies as well as investments in capital and infrastructure to occur, while providing market liquidity and low-cost emissions reductions to help the market function properly. Furthermore, agricultural offsets could also spur ancillary environmental benefits in the form of clean water, air and better wildlife habitat, while at the same time enhancing the fertility and productivity of the soil resource needed to provide food, feed, fuel and fiber. Farmers have always and will continue to respond enthusiastically to market incentives.

Of course, NCGA is closely monitoring the macro-economic impacts of cap-and-trade legislation to ensure that new policies do not create an unnecessary burden for the nation's agriculture sector. We fully anticipate that the cost of fertilizer, fuel, machinery and other inputs to increase under a cap-and-trade system. Corn growers are subject to the volatility of the commodity markets with little ability to recoup costs associated with escalated input prices. Therefore, to ensure a vibrant U.S. agricultural economy in the long-term and an abundant domestic food supply, Congress should structure a cap-and-

trade system that delivers an offsets program where the value exceeds the cost to farmers and ranchers.

We believe it is important to provide an initial list of project types that are considered eligible agricultural offsets. Both the regulated community and agricultural sector need assurances that agricultural offsets will be available. The regulated community should have confidence that a sufficient quantity of offsets will be available for purchase in order to comply with a mandatory cap. The agricultural sector also needs to have clear direction on project types Congress considers to be eligible in order to assess the full impact of cap-and-trade legislation on our industry. An initial, non-exhaustive list of project types in the legislation is critical to addressing these concerns. Shifting the burden of decision-making to an entity other than Congress generates uncertainty that should be avoided. The House version includes such a project list, and NCGA is generally supportive of these provisions even if some modification of the list is necessary in the Senate.

Another top priority of our industry under a cap-and-trade system includes the role of the U.S. Department of Agriculture (USDA). NCGA feels that USDA should play a prominent role in developing standards and administering the program for agricultural offsets. The Department has the institutional resources and technical expertise necessary to oversee a program that has the potential to be massive in scope. USDA has a proven record of working with farmers, in addition to studying, modeling and measuring conservation as well as production practices that sequester significant amounts of carbon. USDA should be given adequate flexibility to implement an offset program which allows them to account for new technologies and practices that emerge. This will in turn result in emission reductions from agricultural sources. NCGA is supportive of the respective roles for USDA and EPA as spelled out in the House version of the bill, which assigns all rulemaking and implementation authority to USDA and provides EPA with a limited administrative function in the program.

NCGA also believes that an important component of creating a successful cap-and-trade system is ensuring that domestic offsets are not artificially limited. H.R. 2454 calls for two billion tons of offsets, half of which are domestic. While the legislation establishes a fairly robust offset market, current estimates predict that agricultural and forestry lands can help to reduce at least 20% of greenhouse gas emissions in the U.S. on an annual basis. Therefore, we believe it is unwise and would distort the market if this one billion ton artificial cap on domestic offsets remains in the bill. The goal should be to remove as much greenhouse gas from the atmosphere as possible. Artificial caps could prevent legitimate carbon sequestration, livestock methane capture, and manure gasification projects from occurring.

Furthermore, NCGA feels that carbon sequestration and greenhouse gas mitigation rates should be based on sound science. There is a large body of scientific data which demonstrates that agricultural soils have the ability to sequester carbon, and technologies are available to effectively measure soil carbon content. In fact, the 2008 Farm Bill included a provision that directs the USDA to develop guidelines and protocols for farmers to participate in a greenhouse gas offsets market. USDA has begun developing a properly constructed, science based model that includes statistically relevant random field

measurements to help maximize agriculture's ability to participate in an offsets market. Any new policies should include provisions for the development of future offset standards and revision of existing standards to account for changing technology and information.

It is also important that USDA establish measurement rates for various offset practices at the national or regional level. NCGA believes in a standards-based approach rather than a project-based approach for measuring offsets. Real, verifiable credits can be achieved without direct measurement of each individual offset project; however, third-party auditing can be employed to ensure the credibility of the system. Meanwhile, a project-based approach would be cost-prohibitive, particularly for smaller farming operations and would prevent many producers from participating in the offsets market. We believe that an acceptable level of accuracy is achievable under a standards-based approach with pre-calculated values based on sound science. This should not preclude the development of new technologies or innovative practices that would require initial field testing or project measuring; however, even these new types of credits should eventually transition to standard protocols and values for ease of adoption.

Concerning the question of permanence, it is important to emphasize the concept of contract duration rather than a literal definition of "permanence." The value of the carbon credit would likely have a strong correlation to the length of the contract. For instance, longer contract periods imply more risk for the seller and should result in a higher price. H.R. 2454 allows for contract periods of five, ten and twenty years, which provide realistic, workable options for agricultural producers. Policies to address reversals, both intentional and unintentional, will also need to be established. Intentional reversals should be considered a breach of contract and the seller would be held responsible based on the terms of the contact. Unintentional reversals, such as instances of natural disasters or other unforeseen circumstances, could be handled through a reserve pool or perhaps a mechanism similar to crop insurance. The bottom line is that risk must be managed appropriately for both the offset buyer and seller, and in most cases, the emphasis should be placed on contract duration rather than permanence.

An issue that continues to be of utmost importance to NCGA is the treatment of early actors and additionality in a cap-and-trade system. The agriculture industry is constantly evolving. As technologies and practices improve, farmers are converting to alternative tillage practices such as no-till or ridge-till. They are reducing fertilizer application rates and enhancing crop uptake of fertilizer nutrients. Some livestock producers are able to use methane digesters and invest in covers for manure storage or treatment facilities while others are able to reduce enteric emissions with dietary modifications. Producers who have taken these steps should not be placed at a competitive disadvantage by being excluded from compensation for future offsets that occur as a result of these ongoing efforts. H.R. 2454 acknowledges this issue by allowing carbon credits for producers who initiated sequestration practices as early as 2001; however, NCGA does not believe this language is inclusive enough.

For example, some of our members have recently begun participated in the Chicago Climate Exchange (CCX) while others have been sequestering carbon through

conservation practices outside of a trading market for many years. These early actors should not be penalized for being pioneers in the area of no-till or low-till agriculture. Planting and tillage decisions are made each year, and there is no guarantee that a producer will decide to continue the same practice as the previous season. It is imprudent to eliminate these early actors from the offset market based on this flawed assumption. In fact, even continuous no-till farms, which represent a small percentage of all U.S. acreage, have the capacity to continue to sequester additional carbon for many years in a row. The bottom line is that each and every crop we grow sequesters additional carbon, and policies should recognize this fact. In addition, Congress should not establish policies that offer perverse incentives to producers that have heretofore been sequestering carbon in the soil. To that end, NCGA supports the development of an "avoided abandonment" offset credit so that no-till producers can receive compensation for their ongoing sequestration activities regardless of when that practice began. The treatment of early actors, particularly those who initiated their efforts prior to 2001, is one major deficiency in the House bill.

It is important to note that many practices undertaken to reduce greenhouse gas emissions will provide additional public benefits, such as clean water, wildlife habitat, and reduced soil erosion. Eligible projects in a greenhouse gas offset market should not be excluded from also participating in Farm Bill conservation programs other markets for environmental services that currently exist or may arise in the future. Allowing producers to "stack" credits will maximize the economic viability of carbon sequestration and manure management projects, ensuring more projects are undertaken and synergies with other environmental priorities are developed.

Lastly, the House passed version of H.R. 2454 also includes an important provision related to the Renewable Fuels Standards. The House bill prohibits EPA from considering indirect land use change when conducting their life cycle analysis for corn based ethanol until a peer reviewed study can be conducted to verify the scientific accuracy of the current modeling. NCGA has criticized recently published data that would suggest a direct correlation between domestic ethanol production and international deforestation. The language in the House bill is a step in the right direction towards sound science a more rational life cycle analysis. We would urge the Senate to include the same provision in its version of the climate bill.

In conclusion, it is our hope that we can continue to work with the Senate Agriculture Committee to ensure Congress chooses the best path for agriculture and rural America. Finally, corn growers will continue to meet the growing demands of food, feed and fuel in an economical and environmentally responsible manner.

I thank the Committee for its time and look forward to any questions you may have.

DOCUMENTS SUBMITTED FOR THE RECORD

SEPTEMBER 9, 2009

TESTIMONY OF C. ROSS HAMILTON, PH. D.

VICE PRESIDENT OF GOVERNMENT AFFAIRS AND TECHNOLOGY

DARLING INTERNATIONAL INC.

TO THE

U.S. SENATE COMMITTEE ON AGRICULTURE, NUTRITION AND FORESTRY

September 15, 2009

Darling International Inc. ("Darling")[1] would like to thank the U.S. Senate Committee on Agriculture, Nutrition and Forestry ("The Committee") for the opportunity to submit written testimony to the Committee's hearing entitled "Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation under a Cap and Trade System." The rendering of animal byproducts and mortalities is an important carbon capture/greenhouse gas avoidance technology, the benefits of which may equal or exceed the environmental benefits derived from many other important agricultural and forestry practices, such as reduced or no-tillage farming and re-forestation. As with these other conservation practices, the use of rendering services for the disposal of animal byproducts and mortalities should be encouraged. Darling therefore, urges the Committee to recognize rendering and similar technologies that avoid greenhouse gas emissions by capturing and using carbon and nitrogen from waste products as eligible domestic agricultural and forestry offset practices.

[1] Darling is publicly traded, which limits information that can be disclosed. Industry data will be used instead where appropriate. Darling's public filings and other information about the company are on its website www.darlingii.com.

Description of Darling International Inc.

Darling, the largest and only publicly traded independent rendering company in the United States, is one of America's leading providers of rendering, recycling and recovery solutions to the nation's food industry. Rendering companies, such as Darling, collect the remains of animals that die outside of the food chain (i.e. on the farm) and materials that would otherwise be discarded, such as meat and slaughter byproducts and used cooking oil from the restaurant industry, and process these inedible wastes to make useable products such as animal fats, recycled cooking oil and animal proteins. These finished products are used as animal feed ingredients, by the oleo-chemical industry and to make biofuel, as previously described for Congress by the Congressional Research Service[2]. Darling is a U.S. agricultural-based company that employs more than 1850 people to operate 83 registered facilities located in 24 states. This infrastructure is used to provide services in more than 33 states to approximately 116,000 farmers, ranchers, butcher shops, independent meat and poultry processors, grocery stores and food service establishments. In addition to its collection, blending and manufacturing facilities, Darling's headquarters are located in Irving, Texas. Darling recognizes its responsibilities in areas such as environmental protection, animal feed/pet food safety and animal health and has a long history of public policy engagement in these and other areas at the state and federal level. Darling includes reasonable solutions to regulatory problems when commenting on relevant rulemaking to regulatory agencies, such as the Food and Drug Administration (FDA), services within the United States Department of Agriculture (USDA), U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB).

Rendering services are essential to the sustainability of animal agriculture

Typically, the agricultural practices considered as eligible sources of offsets are agronomic practices such as changing cropping patterns, reduced tillage, forest/grassland conservation, reduced deforestation and others that sequester carbon in plants and/or the soil to delay the release of greenhouse gases. Without diminishing the importance of carbon sequestration, practices that prevent greenhouse gas production may provide a more permanent way to reduce climate change.

[2] CRS Report for Congress RS21771, Animal Rendering: Economics and Policy, 2004. This report was prepared for Congress after bovine spongiform encephalopathy (BSE) was detected in the U.S. Since CRS issued this report, fats from rendering have become more important as a biofuel and as a feedstock for biodiesel and renewable (green) diesel.

Such greenhouse gas avoidance strategies considered in H.R. 2454 that are available to animal agriculture, include dietary modifications to reduce methane production in cattle and manure management to either reduce or capture methane for use as a fuel. Rendering is also an effective technology for capturing and recycling carbon and should be treated comparably to these other agricultural practices as the Committee develops its list of eligible offset practice types. Darling and other rendering companies are important agri-businesses that provide essential services to animal producers, as well as meat packers, meat processors, and others in the food industry. Without such services, it would be difficult for the animal production and meat industries to remain environmentally sustainable.

USDA estimated that in 2008 more than four million cattle and calves and nine million pigs died on farms or prior to slaughter[3]. Commercial and on-farm slaughter of cattle, pigs and lambs resulted in another 26 billion pounds of inedible animal byproducts.[4] The poultry industry also generates large volumes of poultry mortalities and byproducts each year. Without rendering, animal producers and meat processors would have to find alternative methods for the disposal of their dead animal remains and animal byproducts. These are putrescible materials that will readily incubate diseases, pollute the environment and release greenhouse gases, if not properly handled. Only rendering can address all of these issues. Rendering is the most efficient and environmentally sound disposal alternative for the disposal of these animal remains. Despite its efficacy for greenhouse gas avoidance, however, rendering was omitted from the Agricultural and Forestry Related Offsets Title of H.R. 2454. Rendering and related practices that capture and recycle the carbon from animal, as well as, plant remains should be included as eligible offsets in this or a new Title.

Justification for rendering as an eligible offset practice or project

Title V, Subtitle A of H.R. 2454, covers the Offset Credit Program from domestic agriculture and forestry sources. Key terms, such as *offset credit*, *offset practice* and *offset project* are defined in §501 (a). Darling believes that the process of rendering should satisfy the definition for either an *offset practice* or an *offset project* and that the rendering of animal remains should satisfy the definition for *offset credits*. The carbon and nitrogen in animal remains is captured by

[3] USDA National Agricultural Statistic Service, Meat Animal Production, Disposal and Income 2008 Summary.
[4] USDA National Agricultural Statistic Service, Livestock Slaughter 2008 Summary. Total inedible byproducts calculated from red meat production and number of head and average weight at slaughter.

rendering and recycled into useable products, thus avoiding their conversion to carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) gases. Based on greenhouse gas production measured as animal remains decompose[5], one metric ton of carbon dioxide equivalents (CO_2e), which should qualify for issuance of one offset credit, will be avoided for each 1,065 pounds of animal remains recycled by rendering. Recognition of the rendering process as an eligible offset practice or project would therefore, allow a farmer or a rendering company to receive one offset credit for trade or to use, whenever the remains of a mid-sized cow is rendered. This would ultimately benefit the farmer either directly when he trades the credit, or indirectly when a rendering company applies the value of the credit against the cost of rendering an animal's remains. The value of the benefit would depend on the market value of the credit under a federal cap and trade system.

Section 502 instructs the Secretary of Agriculture to establish a governance program to ensure that certain minimum standards are met in order to generate offset credits from domestic agriculture and forestry sources. Darling agrees that the Secretary of Agriculture should administer agricultural derived offsets under a federal cap and trade system. Darling also agrees that offset credits must be verifiable and issued only when activities result in permanent reductions of atmospheric greenhouse gases. Darling disagrees however, that offset credits can only represent additional greenhouse gas emission reductions for agriculture. This additionality requirement may be applicable for reducing greenhouse gases from combustion emissions, a major contributor to increasing levels of atmospheric greenhouse gases. Additionality may not be appropriate for agriculture which has traditionally used practices that reduce greenhouse gas emissions by either sequestering carbon (such as reduced tillage or converting crop land to grass) or capturing and recycling carbon (such as recycling of plant and animal byproducts). Therefore, additionality should be used judiciously and not broadly applied for agricultural offset practices, projects or credits. In contrast to methods for decreasing industrial combustion emissions, which may be accomplished by applying engineering solutions or using capital to upgrade facilities, agriculture is based on complex biological systems which may not respond predictably to new engineering or capital. Indeed, basing the eligibility of a practice on a calendar date will incentivize the adoption of new practices and discourage the use of established practices that may be more effective. The goal should be to obtain a measureable net reduction in atmospheric

[5] S. Xu, X. Hao, K. Stanford, T. McAllister and F. Larney, "Greenhouse Gas Emissions during Co-Composting of Cattle Mortalities with Manure", Nutrient Cycling in Agroecosystems, Vol. 78, 2007, pp. 177-187.

greenhouse gas levels. This will not be achieved if the net result of replacing an established practice with a new one is an increase in greenhouse gas emissions. Such unintended consequences are illustrated in the following examples:

- *Scenario 1.* Converting land used for crop production to grassland might be an eligible practice if it was converted after January 1, 1999, but not if the grass was established prior to this date. A farmer interested in offset credits might be encouraged to convert a block of land seeded in grass prior to 1999 back to crop production. To gain the offset credit, the farmer may then either seed a new block of land to grass or seed grass on the original block after raising crops on it for a requisite period of time. In this scenario, the farmer might receive offset credits from a net increase in greenhouse gases emitted when the grassland was tilled, which released carbon sequestered in the plants and soil, and from the farm machinery used for tilling and reseeding.
- *Scenario 2.* Recycling practices in agriculture are particularly vulnerable to unintended consequences caused by additionality. Capturing methane in landfills and flaring it off or using it as a fuel will likely be an eligible offset practice. Animal and plant remains would be excellent sources of methane gas in a landfill. If the rendering of animal remains (or recycling plant remains) is not also an eligible offset practice, the value of offset credits may encourage the diversion of animal remains from rendering to landfills. In this scenario, the landfill would receive offset credits for capturing greenhouse gases which had been avoided by rendering before the material was diverted to the landfill. A net increase in greenhouse gas emissions would result from flaring the methane or burning it to make electricity.

In order to prevent such unintended consequences and to assure that offset credits are issued only for practices that can be verified to permanently and actually reduce atmospheric greenhouse gases, the Committee is urged to avoid making additionality a basic requirement for eligible agricultural and forestry practices.

In addition to giving the Secretary of Agriculture the authority to develop a list of domestic agriculture and forestry practices eligible to generate offset credits, §503 lists minimum practices

to be included. Neither rendering nor any other carbon capture/recycling practice is included as one of these minimum practice types. Darling encourages the Committee to recognize the greenhouse gas reduction potential of rendering and similar practices by including rendering in this list of minimum practices. Rendering may be included either directly as a named eligible carbon offset practice or through a general statement that acknowledges recycling efforts in agriculture and lists rendering as an example. Possible language the Committee may consider is: "Practices that capture and recycle carbon from agricultural materials to avoid greenhouse gas release into the atmosphere, such as rendering, shall be considered as eligible offset practices".

The Role of Rendering in Greenhouse Gas Avoidance

Each year, the U.S. rendering industry processes 60 billion pounds of animal mortalities and animal byproducts[6]. Unless stabilized by rendering or a comparable process, these materials decompose rapidly, with the rate being influenced by environmental conditions. Because animal remains consist primarily of water, carbon and nitrogen, greenhouse gases such as CO_2, methane and nitrous oxide are produced and released as the remains decompose. Essentially all of the carbon will be converted to CO_2 or methane, depending on the availability of oxygen during decomposition. If oxygen is readily available, as in properly composted material, CO_2 will be the primary gas produced. Limiting oxygen during decomposition, as may occur in a landfill, will shift gas production to favor more methane and less CO_2. Almost 5 million metric tons of carbon and 500,000 metric tons of nitrogen are captured annually by rendering.[7] This amount of carbon is enough to form 17.5 million metric tons of CO_2. Rendering has a very positive carbon footprint[8]. A typical rendering plant captures and recycles more than seven times more CO_2e than it emits, when all emissions associated with collection, transportation and processing animal remains are considered. Based on greenhouse gas production measured when cattle remains were composted,[9] composting all of the material that is rendered in the U.S. each year would release 39 million metric tons of CO_2e. Placing these same materials into landfills could result in 120 million metric tons of CO_2e being produced each year, assuming landfill gas is 50% methane and 50% CO_2.[10] Burial of carcasses is restricted or prohibited in many areas of the U.S. due to the potential for

[6] National Renderers Association website www.nationalrenderers.org.
[7] National Renderers Association Issue Paper, "Rendering and Its Role in Capturing Carbon Emissions," June 2009.
[8] National Renderers Association , http://nationalrenderers.org/environmental
[9] Xu, loc. cit.
[10] EPA Office of Air and Radiation, "Frequently Asked Questions About Landfill Gas and How It Affects Public Health, Safety and the Environment", June, 2008.

ground and surface water contamination. When animal remains are buried however, greenhouse gases, such as CO_2 and methane, are produced as the remains decompose underground.[11] These gases will escape into the atmosphere if the site is disturbed or gas pressure builds as gases accumulate (as in multiple carcasses in the same burial site) until the gases erupt through the surface.

Facilities that concentrate cattle in large numbers on a single site, such as dairies and feedlots are the most dependent on rendering because of carcass disposal and animal health concerns. A 2005 rendering industry study concluded that 45% of the remains of all cattle that die prior to slaughter in the U.S. each year are rendered.[12] Rendering the remains of all of these cattle avoids the production of more than one million metric tons of CO_2e per year. Emissions from rendering a 1400 pound cow will total approximately 0.09 metric tons of CO_2e, but the formation of 1.32 metric tons of CO_2e will be avoided, resulting in a net greenhouse gas avoidance of 1.23 metric tons of CO_2e[13]. Rendering is also important to other sectors of animal production, such as pork production. The remains of 67% of all pigs that die prior to slaughter in the U.S. are rendered, based on results of another industry study.[14]

Changes the FDA has recently made to its regulations for animal feed and pet food could decrease the number of cattle mortalities that are rendered from 2005 levels. On April 26, 2009, FDA strengthened existing feed safeguards that were put in place in 1997 (21 CFR §589.2000) to prevent the spread of bovine spongiform encephalopathy (BSE; "Mad Cow Disease") among cattle and other ruminant animals in the U.S. Enforcement of these new regulations (21 CFR §589.2000 and 2001) will begin on October 26, 2009 and prohibit the inclusion of brain and spinal cord from cattle 30 months of age or older in feed or food for any animal. These tissues were already prohibited, along with others, from human food, so the rule will have a small impact on the rendering of waste materials from cattle inspected by inspectors from USDA's Food Safety and Inspection Service (FSIS) or state meat inspection services and passed for use in human food. However, for cattle not inspected and passed, such as cattle that die prior to slaughter, the entire carcass will be considered to be prohibited for use in any animal feed, if the brain and spinal cord

[11] A. Nutsch and M. Spire. "Burial", in Carcass Disposal: A Comprehensive Review, ed. by National Animal Biosecurity Consortium, August 2004, pp 43-44.
[12] Informa Economics, "Economic Impacts of Proposed Changes to Livestock Feed Regulations", December 2005.
[13] Based on carbon footprint determinations by Darling International Inc. for rendering facilities and greenhouse gas production during composting by Xu, loc. cit.
[14] Sparks Companies Inc., "Livestock Mortalities: Methods of Disposal and Their potential Costs", March 2002.

are not removed prior to rendering. Removal of the brain and spinal cord from the remains of dead cattle will be labor intensive for renderers because rendering facilities are not designed to handle cattle carcasses the same way that beef packers do. In addition, soft tissues such as the brain and spinal cord decompose rapidly, especially during the summer, which makes them difficult to remove effectively during certain seasons or if the remains are not received by the renderer soon after death. These decomposition issues combined with the higher labor and disposal costs renderers will incur in order to comply with the new feed regulations are expected to reduce the number of cattle mortalities that will be rendered under the new feed regulations. The rendering industry estimates FDA's new feed regulations will decrease the number of cattle mortalities rendered by 66.7%[15].

The proportion (55%) of cattle that die in the U.S., but are not rendered today, may contribute approximately 1.5 million metric tons of CO_2e per year to the atmosphere (assuming gas produced during decomposition is similar to rates observed for composting[16]). The anticipated diversion of cattle mortalities away from rendering and to other disposal options under the new FDA feed regulations, may further increase greenhouse gas production to 2.2 million metric tons of CO_2e per year. In addition, diverting animal remains away from rendering can damage the environment in other ways, such as contributing to nitrogen and phosphorus loading of soil and surface/ground water as well as threaten animal and human health.

The primary economic value for animal protein meals is as a feed ingredient. If the remains of dead cattle that are 30 months of age and older are rendered without first removing the brain and spinal cord, the animal protein meal that is produced will be prohibited for use in the feed or food of any animal by the FDA, under its new feed regulations. Furthermore, renderers must keep these prohibited materials separate from material that is free of the prohibited material. Therefore, in order to render cattle remains without removing the brain and spinal cord, the renderer would have to charge the farmer enough to recover the value of the protein meal that must be disposed of because it cannot be sold for use in feed. Most cattle producers will not pay these additional charges, which is why renderers have been unable to justify dedicating a separate processing line or facility for use as a disposal rendering operation. Including rendering as an eligible agricultural offset practice so that the rendering of cattle remains could qualify for offset

[15] Informa Economics, loc. cit.
[16] Xu, loc. cit.

credits may make disposal rendering feasible (depending on the value of the offset credit) and encourage rendering as a means for disposing of all cattle remains. Encouraging the use of rendering as a disposal method would reduce emissions of greenhouse gases, as well as reduce the release of infectious bacteria and viruses and other potentially harmful agents into the environment. Cattle producers potentially benefit because either they would receive carbon offsets that can be traded to pay the additional service fees renderers will charge for disposal rendering or renderers may not have to raise their service fees.

Even if additionality remains as a basic requirement for agricultural offset practices, rendering should still be an eligible offset practice. It has already been pointed out that 55% of the cattle and 33% of the pigs that die in the U.S. each year are not being rendered today. With the new FDA feed regulations pending in a few weeks, this number will likely increase. Under a federal cap and trade system, rendering the remains of approximately 75% of the cattle that die each year should be eligible for offset credits. Incenting farmers to dispose of their animal remains through rendering would have a measurable impact on reducing greenhouse gas emissions. Renderers would also be encouraged to dedicate processing lines or facilities for disposal processing.

The relative importance of the greenhouse gas avoidance potential of rendering to agriculture can be made by comparing it to the carbon sequestration potential of land enrolled in the Conservation Reserve Program (CRP). Land in the CRP has already been considered eligible as a carbon offset for trade on the Chicago Climate Exchange. The CRP is administered by the Farm Service Agency of the USDA. According to USDA, there are approximately 35 million acres of land previously used for crop production that have been seeded in grass, shrubs and trees and are currently enrolled in the CRP[17]. Some aggregators validating carbon credits for trading on the Chicago Climate Exchange have offered up to 0.75 metric tons of carbon credits per acre[18]. If this rate is applied to all CRP enrolled acres, it would represent approximately 26 million metric tons of CO_2e as being sequestered per year. Although it is important for agriculture to consider both CRP and rendering as important greenhouse gas reduction strategies, rendering currently avoids the production of 1.7 times more greenhouse gases than CRP, when the annual impact of

[17] USDA , "USDA Issues $1.8 Billion in Conservation Reserve Program Rental Payments" News Release, October 1, 2008 ,Release No. 0251.08

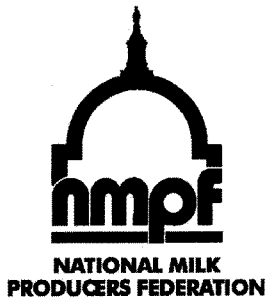
[18] Nebraska Farmers Union, "Nebraska Farmers Union Announces Carbon Credit Program for All Nebraska Counties & New Rangeland Management Program," April 19, 2007, News Letter. (http://nebraskafarmersunion.org).

CRP is compared to the greenhouse gases avoided (39 million metric tons of *CO_2e)* when material is rendered as opposed to composting.

Verifying the amounts of carbon and nitrogen captured for recycling can be easily documented. Darling already possesses much of the information necessary to verify the carbon and nitrogen content of the materials it recycles as well as records needed to identify farmers, ranchers, meat processors and others that send animal remains to Darling for rendering. The chemical composition of the animal protein meals and animal fats derived from rendering is easily done using validated procedures. Darling routinely collects samples of all of its finished products to monitor product composition. In addition, all of Darling's recycling facilities are individually registered with the FDA pursuant to § 415 of the Federal Food, Drug and Cosmetic Act and 21 CFR Part 1, Subpart H. All Darling rendering facilities are also registered with FSIS/USDA as required under 9 CFR § 320.5. Darling also complies with FDA regulations (21 CFR §589.2000 and 2001; 21 CFR Part 1, Subpart J; Section 417 of the Food, Drug and Cosmetic Act) that require that records be kept of all incoming materials for processing, including the name and address of the source and weight of the material and all outbound materials, including the name and address of the buyer/consignee and weight of the material Such records are to facilitate traceability one-step backward and one-step forward in the supply chain.

Conclusion

Rendering is an effective method for collecting, processing and recycling the remains of dead animals and meat processing wastes. These materials are highly putrescible and release greenhouse gases as they decompose. Designating rendering as an eligible offset practice in climate change legislation approved by the Senate will promote the responsible disposal of these animal remains and avoid unnecessary CO_2, methane and nitrous oxide emissions. Including rendering as an eligible offset practice will provide an important measureable offset to the agricultural community.



Senate Agriculture Committee Written Testimony
Global Warming Legislation: Carbon Markets and Producer Groups

September 16, 2009

Senate Agriculture Committee Testimony
September 16, 2009
National Milk Producers Federation

Mr. Chairman, Ranking Member and members of the committee: thank you for the opportunity to submit agriculture's views on climate change legislation. My name is Jerry Kozak and I am the President/CEOP for the National Milk Producers Federation (NMPF). NMPF develops and carries out policies that advance the well being of dairy producers and the cooperatives they own. The members of NMPF's 31 cooperatives produce the majority of the U.S. milk supply, making NMPF the voice of more than 40,000 dairy producers on Capitol Hill and with government agencies.

The House of Representatives passed H.R. 2454, our organization appreciates the fact that the bill's authors did not regulate agriculture under the cap-and-trade system they propose in the bill. NMPF supports the concept of cap-and-trade as long as agriculture is not a caped industry. However, NMPF remained neutral on the overall bill passage because it is still unclear what impact will be felt on the dairy industry. This is why it is critical that before this bill becomes law, Congress must address a number of concerns. My testimony today will focus on the specific context of offsets and allowances from which we view this bill and climate change policies overall and the changes we would like to see the Senate correct starting from H.R. 2454.

The Dairy Farm Economic Crisis

It has been a very difficult year for dairy farmers. And we have greatly appreciated all of your help and support as farm level milk prices headed sharply lower creating tremendous economic stress and pressures in the dairy farming community. The price that farmers were receiving for bottled milk was down nearly 50% from last winter. Current prices received by farmers do not even cover the cost of feed. The reason farm prices have declined so drastically is due to the slowdown in the US and global economy with the end result of a precipitously drop in U.S. exports. The problems in the global economy and the effects on consumers' buying habits are adding to that downward pressure.

Dairy Farmer's GHG Commitment

Despite these severe economic challenges, dairy farmers and their cooperatives have maintained their deep commitment to reducing their GHG emissions on farm and throughout the dairy chain. Our industry has voluntarily committed to an action plan to reduce the carbon footprint of fluid milk by an additional 25% by 2020. Work is underway throughout the dairy industry to help achieve this goal. We are looking at

farm practices ranging from dairy feed systems, efforts to reduce enteric methane production, to farm energy audits, and addressing barriers to methane digesters. At the processing level, practices being examined include items like non-thermal UV technology as an alternative to heat-based pasteurization, increased energy efficiencies in dairy plants, improved transportation systems, as well as product packaging and delivery systems.

One of the primary challenges standing in the way of wider adoption of these opportunities is the significant cost entailed. We are hopeful that an offsets market could make many of these GHG reduction practices and processes more affordable and widespread in our industry.

Dairy Sector's Strong GHG Performance Historically and Today

There have been inaccurate perceptions that animal agriculture is a significant contributor to U.S. greenhouse gas emissions. In fact, the modern dairy sector has improved its performance on GHG emissions dramatically over the last 60 years and any effort to return to the production systems that prevailed in the 1940s would have a disastrous effect on our industry's GHG performance.

EPA has reported that animal agriculture is responsible for approximately 2.5% of US GHG emissions, about half of which is enteric fermentation (1.7% of total).[1] As these statistics show, modern US livestock agriculture is a very small portion of US emissions. Manure methane and nitrous oxide emissions from dairy cows, as reported in the EPA Inventory, are only about 0.3% of total US emissions of all GHGs on a CO2 equivalent basis. The emissions from all livestock are only about 0.8%. [2]

Research conducted recently at Cornell University and published in the Journal of Animal Science explores these questions and finds that the most efficient and environmentally friendly way to raise dairy cows and produce milk is definitely not the use of the dairy farm systems that prevailed before the advent of modern commercial farming. The article, entitled "The environmental impact of dairy production: 1944 compared to 2007," found that:

> Modern dairy practices require considerably fewer resources than dairying in 1944 with 21% of animals, 23% of feedstuffs, 35% of the water, and only 10% of the land required to produce the same 1 billion kg of milk. Waste outputs were similarly reduced, with modern dairy systems producing 24% of the manure, 43% of CH4, and 56% of N2O per billion kg of milk compared with equivalent

[1] Environmental Protection Agency (EPA), 2008. "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006. EPA, Washington, DC. Calculated from statistics provided in tables ES-2 and 6-1.
[2] The other .2% of emissions associated with livestock production comes from nitrous oxide.

milk from historical dairying. The carbon footprint per billion kilograms of milk produced in 2007 was 37% of equivalent milk production in 1944."

Not surprisingly, the dairy sector's total carbon footprint has also been dramatically reduced. Total GHG emissions for the dairy sector in 1944 was 194 million metric tons in CO2 equivalents. By 2007 this had been reduced by 41%, to 114 million metric tons. The article closes with, "Contrary to the negative image often associated with 'factory farms,' fulfilling the requirement for dairy products of the US population while improving environmental stewardship can only be achieved by using modern agriculture techniques." Modern US dairy farming is a tremendous example of how the world can produce the goods and services needed by people, in this case the very food we eat, and doing so while producing less GHGs per calorie of food.

Dairy producers and the entire dairy chain are committed to meeting these goals. It is from our dairy sector's commitment to continuing this record of GHG performance while helping feed the US and the world and helping our businesses thrive that we offer the following comments on H.R. 2454.

1. **The bill must maintain a strong role for USDA.** H.R. 2454 recognized the importance of USDA to establish, audit and implement all the offsets standards and protocols for the agricultural offsets program. USDA has the technical understanding of the various practices that can generate offsets and has done research on how to measure GHG reductions or sequestrations coming from these practices. USDA also has the relationships with ranchers and farmers to facilitate the implementation of the program. USDA has the infrastructure to manage such a program – with county extension offices across much of the country. We understand that there is a necessary role for EPA to play in overseeing the environmental integrity of the offsets program, and feel that EPA and USDA should work jointly together to ensure that the agricultural offsets assist in the overall goal of the climate change program.

   USDA is best positioned to create technical standards and protocols for GHG emissions reductions and sequestration from the agricultural and forestry sectors. Nearly all of the scientific data and documentation behind existing agricultural and forestry standards used by carbon registries is grounded in work conducted by USDA scientists or their land grant university partners. Thirteen of USDA's Forest Service scientists shared in the Nobel Peace prize for the UN Intergovernmental Panel on Climate Change report connected to their forestry work. USDA's Natural Resource Conservation Service, Cooperative State Research, Education, Farm Service Agency and Extension

Service, Economic Research Service and Agricultural Research Service have done similar work for agricultural practices that reduce GHG emissions and sequester carbon, such as methane capture and conservation tillage. USDA also has the institutional resources, administrative structure, and established relationships in place to engage farmers and ranchers across the country. USDA has tens of thousands of employees working with agricultural producers on various conservation issues. The relationships that USDA has with farmers and ranchers allow it to have the trust necessary to create, administer as well as drive higher levels of participation in the offset program. Indeed, their field assets, technical expertise and the level of trust that USDA has developed make it uniquely positioned. For these reasons § 2709 of the 2008 Farm Bill gave USDA the authority to create technical standards to facilitate participation in emerging carbon, water or other ecosystem service markets.

Since EPA will be charged with administering the overarching cap-and-trade system, we would expect EPA to review the integrity of the offset program. In that regard, EPA can periodically review the standards, protocols and verifications systems established by USDA to ensure that they are being successfully implemented into the larger cap and trade system.

2. **The bill's requirement for additional "performance standards" must be clarified so that CAFOs are not included in "back-door" climate regulation.** Section 811 of H.R. 2454 tasks EPA to set standards for regulatory compliance measures that would be required of some uncapped sectors. The criteria listed for this section could include some of the larger CAFOs in the livestock industry and would therefore remove these operations from being able to provide offsets and would instead require measures such as digesters to reduce their emissions as part of the performance standard for their category. While enteric emissions from animals are not counted, nothing is mentioned about methane or nitrous oxide emissions from manure or from combustion processes. It needs to be made clear that emissions from all agricultural and livestock activities are not regulated – either directly by the climate emissions cap, or indirectly by the performance standards. This clarity would reflect the promises that lawmakers sponsoring all climate change bills have long made to the agriculture industry that the sector shall not be regulated.

Methane digesters are a tested and proven technology however, the costs for installation, maintenance with limited return, prohibit many farms from

taking the leap to install them. Cost could range from $2 to $5 million to install a digester on a dairy farm. Through a cap-and-trade market, more farms will install digesters because it will become economically viable for additional producers to take the next step. However, if all producers were required to install methane digesters with no economic compensation through these performance standards, it would drive a significant number of them out of business.

The potential problem for the livestock industry comes if they are determined to have emitted at least 10% of the uncapped methane emissions in 2005 and/or were deemed to be responsible for emitting at least 20% annually of the uncapped GHG emissions. These triggers could mean that performance standards which are not detailed in the House passed version, could be applied to the livestock industry. Even if regulations are not imposed, if the 10,000 ton emission level is met, GHG reporting would likely be required.

Another area of concern comes from the fact that the performance standards themselves remain unknown. That is, this section requires the EPA administrator to come up with regulations, but does not specify exactly what will result from this process – leaving a big unknown for the industry and an unintended situation.

3. **The bill should shorten the time allowed for setting up offsets program standards.** Section 732(a) of the Waxman-Markey bill creates an offset program via regulation "Not later than 2 years after the date of enactment of this title". As written, it is probable that regulations establishing an offset program will not be in place when the cap-and-trade system takes effect. Having regulations in place early will allow the necessary infrastructure to develop to establish a carbon market that can complete transactions and trades. Agricultural and forestry offset projects are currently being created across the country and in other countries under voluntary private and State or regional carbon markets. The Clean Development Mechanism (CDM) in the Kyoto Protocol, the Chicago Climate Exchange (CCX), the Regional Greenhouse Gas Initiative(RGGI), and California's Climate Action Review Board (CARB) all are examples of systems with existing carbon protocols and markets, providing ample precedent from which a federal program can be crafted. Further, under the 2008 Farm Bill USDA has been charged with establishing protocols for carbon and other ecosystem service markets. The government of Canada is establishing a carbon offset program (to include

agricultural and forestry offsets) in 2010, and the carbon trading program in 2012, to ensure the availability of offsets at the start of the system.

4. **The bill must recognize and reward the avoided emissions efforts undertaken by agricultural leaders to reduce GHG emissions and/or sequester carbon.** Significant numbers of agricultural and forestry landowners have already undertaken actions that reduce GHG emissions or sequester carbon. These early actors should be eligible for compensation for the avoided emissions. The reason this is so important is because the greenhouse gas reductions and sequestration performed by early actors is not required by law and can be undone if the current bill's perverse incentive is not corrected. In order to maintain these avoided emissions – or emissions that could otherwise be emitted, there must be compensation. The House bill has a very limited recognition of early actors and the Senate bill should correct this issue.

   Congress must recognize and reward the early efforts undertaken by agricultural leaders to reduce GHG emissions and/or sequester carbon. Significant numbers of agricultural and forestry landowners have already undertaken actions that reduce GHG emissions or sequester carbon. Changes in management taken by these early actors include, but are not limited to, switching to or maintaining zero tillage ("no-till"), using new technology to capture methane for improved animal waste management, and afforesting or reforesting buffers or larger ecosystem landscapes. These early actors should be eligible for compensation for the on-going GHG emissions reductions or carbon sequestration that they achieve within the offset program, if they qualify under all other offset protocols

   The treatment of early actors is vital to agriculture's participation in a climate change system. Produces across the American landscape have been engaged in innovative efforts to sequester carbon using a variety of techniques. These producers should be allowed to participate in the offset program being created by Congress under a cap-and-trade regime. The central purpose of any offset program is to encourage the widespread adoption of conservation or other practices that reduce GHG emissions or sequester carbon and which in turn reduces, and potentially reverses global warming impacts, as well as provides cost containment for the entire cap-and-trade system. Agricultural producers who have already begun to experiment with GHG emissions reductions and carbon sequestration

practices, techniques and projects are critical emissaries to promote and ensure widespread adoption of these practices. In fact, these early actors often are the leaders of agricultural organizations and their leadership is needed to constructively engage their organizations and their membership on climate change policy. Thus, by rewarding early actors we support constructive political engagement by agriculture and we create a core group of emissaries who will encourage offset projects.

Allowing early actors' projects to be eligible does NOT automatically result in offset credits being issued for previous reduction activities. Early actor projects, like any other project, would have to comply with all other offset protocols for the practice, technique or project type that they are engaged in. Thus even if a producer adopted a practice in 2002, if that producer does not meet other offset protocols he will not be eligible to provide offset credits. Further, early actors will not be paid for GHG emissions reductions or carbon sequestered retroactively. Instead, they will be paid for future GHG emissions reductions or carbon sequestration. As an example, if a producer began no till in 2002 and his soil is projected to reach saturation in 25 years then that producer will only be paid for carbon sequestered between the date any cap-and-trade system starts and 2027.

5. **The agricultural sector should be provided with an allocation of allowances, or a portion of allowance auction revenues.** While climate change legislation will impose higher input costs (such as fuel and fertilizer) for agriculture as a sector, producers have an extremely limited ability to pass higher costs along to downstream purchasers. Agricultural producers are typically price takers in economic terms and in such a situation an allowance allocation, or the proceeds of an allowance auction, could serve to smooth the transition for producers, especially those that are not in a position to capture potential offset credit benefits. Small producers for example are less likely to be in a position to generate offset credits—it may be a simple matter of the amount of credits that they could generate not warranting the cost of changing the practice or the cost of compliance to verify the offset credits themselves. Allowance set asides, or the proceeds from an allowance auction, should be used by USDA to smooth the transition for at-risk agricultural producers as we establish a new carbon reduction system.

   The agricultural sector faces unique challenges in dealing with the impacts of climate change as it begins to impact our nation and world. Agricultural producers experience and are impacted by climate and weather changes

perhaps more than any other sector; for most farmers and ranchers changes in moisture, temperature, and alterations in the growing season directly impact the ability to produce the food and fiber our nation and world need. As such, allocating allowances or allowance revenues for research into adaptation is vital. New seeds, new technologies and new techniques will be needed for the farmer and rancher of the future to produce the same vast quantities of food that we enjoy today. As global populations continue to expand, the American producer will be called upon to produce even more, and government aided research efforts into adaptation can help achieve that objective

Farmers and ranchers are creative and innovative. As carbon markets develop, new techniques, practices and technologies for reducing GHG emissions and for sequestering carbon will be developed, yet funding could be vital to bridge the development phase for producers. Allowance allocations, or the proceeds of an allowance auction, could serve to encourage the development of these yet to be discovered carbon sequestration or emissions reduction methods—allowances could in effect serve as a bridge as data is collected and verified. Eventually, after an appropriate developmental phase, some of these techniques could be certified as accredited offsets, and thus would no longer require allowance funding.

6. **Offset eligibility and compensation should be based on whether a project, technique, or practice sequesters carbon, or otherwise reduces greenhouse gases (GHG) from a date certain.** Use of the BAU methodology in the Waxman/Markey bill will limit the amount of GHG emissions reductions or carbon sequestration by agriculture and forestry. The central purpose of the legislation is to reduce or eliminate as much CO2 as possible, yet by using a BAU methodology to determine project eligibility limits the amount of low cost offsets that will be provided. Section 734(a)(1) requires that offset projects conform to a standard methodology that will determine whether the offset project is BAU for an industry. The text further provides that the government can change baselines, perhaps significantly, on a regular basis. This unnecessarily creates a high level of uncertainty for agricultural producers and investors regarding whether offset projects they are undertaking or about to undertake will qualify for offset credits. Uncertainty in turn will dampen the level and scale of participation in an offset program, and hence the success of the offset program, which is an important component of cost-containment in a cap-and-trade system.

By applying this type of updated BAU test for additionality the draft also ensures that the "hardest" or least likely projects or producers (i.e., those least likely to participate at modest prices and early stages of a program) will never participate. Rather than actively ignoring or omitting the "hardest" projects/least environmentally sensitive producers, an offset program should specifically strive to reach this population. Further, the logic of this type of BAU methodology devalues carbon emission reductions overtime. Projects that produce real, verifiable GHG reductions should receive credit.

To give one example: currently there are approximately 125 methane digester systems across the country, accounting for less than 1% of all dairy, hog, and beef cattle operations. Congress should enact a statute that incentivizes the installation of more digesters – striving for 100% penetration, for instance -- rather than deciding that at 50% market penetration the practice is considered BAU and will no longer receive offset credits. Thus digesters installed when market penetration is at 45% are just as valuable to GHG impacts as digesters installed at 95% market penetration (and perhaps more so, if early reductions have already been achieved, and we are seeking the latter, "harder" reductions); each of these digesters should receive just compensation for the emissions reductions delivered—actual tons of GHG destroyed—and not be dependent on when they were built in relation to each other.

The Waxman/Markey bill changes baselines over time unfairly moving the goal posts and limiting project investments. Rather than recurrently changing baselines as established in the bill, producers and investors need a static baseline to make production and investment decisions. USDA should be charged with determining the normal activity baseline for each offset project type using a historical or temporal baseline. Once USDA sets that baseline, offset projects can be judged against the baseline to determine whether a proposed action is additional vis-à-vis the temporal baseline. Such a baseline system will ensure certainty to producers (offset providers) and buyers.

7. **Global Implementation of Climate Change Legislation.** It is critical that the United States negotiates quickly a comprehensive implementation of GHG reductions around the world. Although we support the concept of cap-and-trade we remain concerned about the potential costs to the economy from unilateral action by the United States. There are a number of important agricultural exporters around the world that could gain competitive advantage if careful consideration is not given to the application of these reductions throughout the world.

These are the dairy industry's top recommendations for fully realizing the ag offset potential in the climate change legislation. We urge this committee to take on the role of champion for the agriculture industry in this matter as it has so often in other ag-related legislation. Our industry is concerned that should this bill pass through the Senate without these important corrections, there will not be a workable offsets title for America's livestock and farming sectors.

We cannot emphasize enough how important it is for this committee to make their stamp on the legislation that will come out of the Senate Environment and Public Works Committee. There are some who would advise standing on the sidelines and opposing this effort entirely. We believe that this is a huge risk for the livestock and row crop producers of America and we see great opportunities for our industry with properly crated legislation.

We urge this committee to proactively engage in drafting the Senate version of climate change bill better for agriculture.

QUESTIONS AND ANSWERS

SEPTEMBER 9, 2009

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Mr. Andy Beckstoffer
September 9, 2009

Chairman Tom Harkin

You mentioned this briefly in your written testimony, but I want to spend a little bit more time discussing the impact that climate change is already having on your crops. I think this is an important topic to address because it illustrates the fact that there is a cost to doing nothing when it comes to climate change. For example, you mentioned more heat spikes, higher nighttime temperatures, and new pests and diseases as challenges that are beginning to emerge for your industry.

Even if we do not yet fully understand how all of these things will impact your business as a winegrape grower, surely these are challenges that concern you.

1. As a winegrape producer with over 30 years of experience in agriculture, could you talk a bit more about the business risks that climate change presents to your operation now and in the future?

On page five of my testimony I discuss more frequent heat spikes to which we have adjusted by installing trellises that we can alter on short notice to deal with heat spikes. We can adapt with proper viticultural practices at considerable expense, but it is necessary to maintain the quality of our premium winegrapes. There have been limited studies to assist the wine community in understanding the potential impacts of climate change to the quality and productivity of winegrape vineyards. However, the data we collect from vintage to vintage shows that we can adapt and that the maximum temperatures haven't changed so much – but that the minimum temperatures have risen, and that is something for which we must continually make adjustment. It is the extreme heat incidents and temperature changes, not the averages, that represent the most risk.

There is no doubt in my mind that much more needs to be done to identify suitable rootstocks and conduct new rootstock breeding programs to facilitate our adaptation. Of course, that is a years long – if not decades long – process and one that must be conducted in the context of changing consumer taste profiles and expectations. There is a five-year delay from the time I plant a vineyard to the time it reaches the consumer in a bottle. North Coast development costs for a new vineyard run from $25,000 to $40,000. Our capital investment is made for at least a 25 year period. That is why we invest so heavily in cutting-edge viticultural practices to adapt to things like changing temperatures.

Irrigation is critical to adaptation. The lower snow pack forecast by the experts and changing rainfall patterns present a very real risk to our businesses. Our quality, our productivity, and our profitability are dependent upon adequate water which we manage precisely with the most advanced technology in plant monitoring and water application.

The California Sustainable Winegrowing Program is an integrated whole farm approach to decision making that helps participants better understand and evaluate the trade-offs and impacts of each practice. It is in an important tool for helping us adapt to changing resource and regulatory concerns.

The uncertainties presented by climate change and the scarce allocation of resources like water underscore the most important investment government can make: funding agricultural research and extension to assure that farmers and ranchers have the ability to continue adapting to meet the food and fiber needs of the world's rapidly expanding population.

2. Do you have any suggestions on how we could better educate farmers in other parts of the country about the implications to their livelihoods if nothing is done to address climate change over the decades to come?

Senator, this is surely not my area of expertise! However, the Committee might consider conducting field hearings in different regions of the country. It should also conduct hearings for researchers and extension personnel to provide information about the potential impacts of climate change to farmer and rancher livelihoods.

Senator Chuck Grassley

1) The EPA analysis of the House-passed Waxman-Markey Bill showed that the vast majority of domestic offsets would go toward planting trees and forest management and only a small fraction would go toward agriculture. Can you discuss some of the obstacles to agriculture becoming a major source of offsets and if there are ways to overcome them?

While considerable research and demonstration of the advantages of no-till and minimum tillage practices has been done, not nearly enough research has been done to quantify the benefits of other practices and document their value as measurable, verifiable carbon and GHG offsets. Just a few of the ag practices that have the potential to produce significant offsets include cover crops; modified fertilizer techniques; crop and residue waste management schemes; biochar; and the role of perennial crops – vineyards; orchards; hay; and dedicated fuel crops.

This is why it is critical that USDA with its technical and scientific expertise of agricultural and farming practices have the primary role in developing ag GHG reduction or sequestration parameters for carbon offset protocols.

We plant our vineyards for an economic life of 20 years. Unless we are given credit for past and ongoing carbon sequestration, this legislation is of very little value to winegrape growers.

2) Farmers' livelihoods depend on their competitiveness in a world economy. While the U.S. remains a strong player in agricultural trade, I believe that moving unilaterally on a climate change bill, without an international agreement; will put all U.S. industries at a competitive disadvantage. Right now, we have no guarantees that farmer's offsets will exceed the indirect costs they will undoubtedly have to shoulder. Please describe what you foresee as the international economic consequences our producers would encounter if a cap and trade system is put into place in the United States, but not elsewhere in the world.

Farmers and ranchers must not be put at a competitive disadvantage in international trade. California winegrape growers face vigorous competition from other wine producing countries with lower costs of production.

Senator John Thune

1) In the early years of a cap and trade system, what types of offset practices do you think will be used first? Planting trees? Conservation tillage?

Those practices for which research has already been completed and protocols approved are planting trees (forestry) and conservation tillage. Therefore they are best positioned for measurable and verifiable offset credits. There is great potential for other ag practices to produce significant offsets and other environmental benefits from cover crops; modified fertilizer techniques; crop and residue waste management schemes; biochar; and the role of perennial crops – vineyards; orchards; hay; and dedicated fuel crops.

It is very important that winegrapes and other perennial crops be given credit for carbon sequestration of past and continuing practices. We plant our vineyards for an economic life of 20 years. Thus, if credit is given only for new plantings, the legislation would be of little help to winegrape growers.

2) As many of you know, agriculture or domestic offsets are capped under the House-passed cap and trade bill. Should these offsets be capped under a truly market-based system? Why or why not? Should international offsets be capped?

Domestic offsets should not be capped.

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Mr. Luke Brubaker
September 9, 2009

Chairman Tom Harkin

In your testimony you mentioned being able to sell carbon credits for reducing greenhouse gas emissions through the use of your digester.

1) Can you tell us more about the economics of that project, please?

   a. What was the total project cost and what is the annual income.

      - Total project cost was $1.25 million dollars.
      - This year's income will be approximately $200,000.00 for the sale of electric.

   We derive a savings of approximately $40,000 as a result of not needing to buy bedding for the cows. We separate the solids from the liquid and use it to bed the cows instead of buying wood shavings or saw dust.

   We sell separated solids to other farmers. $10,000 was derived from the sale of solids.

   Sale of credits sold: about one-half sold for 20 years. What we sold equals over $100,000 which when invested for 20 years approximately doubles the money.

   b. How many credits does your system generate, how do you sell the credits, and at what price?

      - KW = tons of carbon to sell taken out of the air.
      - Sold to a trading company.
      - The market fluctuates.
      - We sold at a good time--$3.00 to $4.00 a ton.
      - I believe the market is a lot less now.

c. How does the income from the credits compare with the income from selling the electricity?

- A lot less for the sale of credits than sale of electricity.
- With a good cap and trade bill, it could mean a lot more money for the credits.

Senator Pat Roberts

1) How many head of cattle does it take to make a methane/manure digester functional and economical?

   - A good number would be 500 head or more.

2) What is the annual operation and maintenance cost for a methane digester?

   - $10,000 to $25,000; this depends on the amount of repairs.

3) Does the functionality of a digester change with head count, feed content, or seasonal change? If so, how does this affect normal day to day operations and management ability?

   - Yes. In the summer, if there is more water in the manure, because of cooling the cows, it takes more volume of manure to make the same amount of electricity.

   - Adding other food products make extra electricity.

   - A little more setup on the computer system to add other feed or food by-products.

4) Do you believe a digester would work on a cow-calf operation, feeder cattle operation or for a small feedlot?

   - If the manure is in a liquid form that the manure can flow, it could work.

   - Getting the manure to the digester as quickly as possible is the key before it loses the gases into the air.

Senator Chuck Grassley

1) The EPA analysis of the House-passed Waxman-Markey Bill showed that the vast majority of domestic offsets would go toward planting trees and forest management and only a small fraction would go toward agriculture. Can you discuss some of the obstacles to agriculture becoming a major source of offsets and if there are ways to overcome them?

   - I believe agriculture has a great opportunity with the use of conservation practices: no-till, cover crops, and methane digesters.
   - The bill must more than offset any higher cost the farmer would incur.
   - I do believe planting trees and forest management would be a big part of the program, but I am not sure if would benefit most of agriculture.

2) Farmers' livelihoods depend on their competitiveness in a world economy. While the U.S. remains a strong player in agricultural trade, I believe that moving unilaterally on a climate change bill, without an international agreement; will put all U.S. industries at a competitive disadvantage. Right now, we have no guarantees that farmer's offsets will exceed the indirect costs they will undoubtedly have to shoulder. Please describe what you foresee as the international economic consequences our producers would encounter if a cap and trade system is put into place in the United States, but not elsewhere in the world.

   - I think your statement is very true.
   - If a bill is written wrong, it would be devastating to agriculture.
   - Imports may have a tendency to come into the country like fertilizer, dairy products and fruits, etc. if U.S. products are priced out of the market.

Senator John Thune

1) In the early years of a cap and trade system, what types of offset practices do you think will be used first? Planting trees? Conservation tillage?

   - In order: Planting trees, grasslands, no-till, cover crops, and methane digesters.

2) As many of you know, agriculture or domestic offsets are capped under the House-passed cap and trade bill. Should these offsets be capped under a truly market-based system? Why or why not? Should international offsets be capped?

   - My farming operation put forth a significant capital investment in order to install the methane digester, which is a clean, efficient and an American source of renewable energy. I do not think it would be a good idea to cap domestic agricultural off-sets as proposed in the U.S. House version of the Climate Change legislation. There does not seem to be any sound policy rationale for placing a cap on such offsets, like those produced by my farming operation, that supply clean and efficient domestic energy and provide a valuable environmental benefit.

     There may, however, be appropriate reasons for considering caps on international offsets for two reasons. First, many people argue that this legislation would drive American jobs off-shore. Without a cap on foreign off-sets, the purchase of such off-sets may also be driven off-shore, where there is little regulation and these off-sets would be feasibly cheaper than the same type of off-sets in the United States. Secondly, I would call it bad policy to offer the same countries the ability to sell "off-sets" when they have not adopted any caps on emissions. Such an approach would truly put the American farmer and businessman at a competitive disadvantage.

     My recommendation to the Committee would be to allow international off-sets to be considered for purchase, only after a certain level of domestic off-sets have been utilized, set at a sufficiently high level to assure that all agricultural producers have the opportunity to benefit from such a program. This approach shows a true investment in the American economy (at this much needed time) and does not totally create a trade barrier with other nations.

3) As you know, many dairy and hog producers are going through a historic economic downturn in their respective industries. Several hog and dairy producers are tens of thousands of dollars of equity with each passing week. Any analysis that shows a positive impact on these producers assumes that operations of a certain size will install an anaerobic digester to benefit from carbon offsets. Considering the high costs of this equipment and the fact that the climate change legislation would start in 2012, do you believe that most producers would be able to finance this type of equipment in the next 12 to 18 months?

- Thank you for being aware of this. I am a dairy farmer and I know.
- I don't have any analysis that shows a positive impact.
- There is a very easy way to capture carbon offsets.
- You can cover any size manure pit and lagoon and flare off the gases.
- if there is a good price for credit; this would be a very reasonable way to capture credits.
- Maybe a small grant to help cover lagoons would help in these low commodity prices for hog and dairy farmers.

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Chairman Gary Gensler
September 9, 2009

Chairman Tom Harkin

1) As Congress considers reforms of the Commodity Exchange Act, what modifications would be necessary to provide the authority for CFTC to effectively regulate trading in both the cash and futures markets for emission allowances and offsets?

Senator John Thune

1) H.R. 2454 allows third parties, such as investment banks or foreign nations to participate in the carbon market. In other words, third parties that are not directly associated with carbon offsets would be able to purchase these credits on an exchange. Does this leave the carbon market open to undue influence or manipulation? Under this scenario, would a third party or a group of third parties be able to drive up the price of carbon by purchasing large amounts of carbon allowances or available carbon credits?

   What role will speculators play in the carbon market? How will you define a speculator? How will you define excessive speculation?

2) As you know, the House cap and trade bill gives jurisdiction over the carbon-based derivatives to the CFTC, with the Federal Energy Regulatory Commission overseeing cash transactions in the allowances themselves. Standalone legislation has been introduced in the Senate that would give the CFTC jurisdiction over both the derivatives and cash transactions of the carbon market. Would you compare and contrast the benefits or drawbacks of giving the CFTC jurisdiction over both the derivatives and cash transactions of the carbon market?

3) We have heard estimates that the future carbon market under a mandatory cap-and-trade proposals will total several billions of dollars up to two trillion – according to CFTC Commissioner Bart Chilton. What is your estimate for the carbon futures market? What it your estimate for the carbon cash market? What is the size of these markets today?

4) As you know, agriculture or domestic offsets are capped under the House-passed cap and trade bill. Should these offsets be capped under a truly market-based system? Why or why not? Should international offsets be capped?

5) How will the CFTC work with EPA to determine when or if carbon allowance reserves should be tapped? Are these reserve thresholds adequate to keep carbon costs steady?

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Mr. Joseph R. Glace
September 9, 2009

Chairman Tom Harkin

1) Can you break down the costs of the over-the-counter transaction for me? How much does it cost to conduct business on exchange versus off-exchange? What are the indirect costs associated with wider bid-ask spreads in the over-the counter markets compared to exchange trading? How much more would electricity cost your customers if you could only hedge on regulated markets with stricter margin and capital requirements?

Senator Chuck Grassley

1) While reviewing the panel's testimony, a theme emerged from a few of the statements. This theme is that customers of power costs will increase if OTC contracts are standardized and required to trade on an exchange. However, OTC contracts are so new, only developed in the last 10 years. And carbon OTC contacts are even more recent than that. Can you explain how an OTC carbon market is so critical to keeping costs low, when up until a few years ago, it didn't even exist?

2) Many of you have stated the need for additional transparency in the new market for carbon allowances and I agree that this will be critical to ensure the soundness and effectiveness of risk management for both investors and producers. Some of the testimony today has focused on the differences in carbon markets versus traditional agricultural and energy markets. Can anyone give me some specific examples of how to make these markets transparent if not in the same way that traditional CFTC markets are required to display transparency?

Senator John Thune

1) Can you provide an example of why two market participants would need to use the Over the Counter (OTC) market for a transaction in the carbon market place?

   In your testimony, you mentioned that forcing these unique transactions onto an exchange would dramatically drive up costs. Could you provide this committee with a better perception of why this requirement would increase costs, and how much would costs increase on account of such a requirement? With regards to these transactions, what specific types of information should be reported to ensure transparency while still maintaining the confidential information of the emitter and trader?

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Dr. Dave Miller
September 9, 2009

Chairman Tom Harkin

1) In your written testimony, you discussed the challenges of establishing standards for offsets. You also mentioned the costs associated with assuring the value of offset activity and that the cost could become prohibitive. Given your discussion of complicated design protocols and uncertainty about valuing offsets, would you support discounts on offsets as a mechanism to address some of the valuation and verification problems inherent in an offset program? If so, should the offsets be discounted by a standard percentage or should the discount reflect expected leakage or nonperformance?

Senator Chuck Grassley

1) Do you believe that it is possible for the average farmer, in Iowa or elsewhere, to recover his increased input costs, in terms of higher fuel and fertilizer prices for example, that would be caused by a cap and trade system like in the Waxman-Markey Bill, by selling offsets?

2) The EPA analysis of the House-passed Waxman-Markey Bill showed that the vast majority of domestic offsets would go toward planting trees and forest management and only a small fraction would go toward agriculture. Can you discuss some of the obstacles to agriculture becoming a major source of offsets and if there are ways to overcome them?

3) Of the sources of ag offsets, one of the most frequently mentioned is shifting to no-till, but the EPA analysis admits that "agricultural soil sequestration does not show significant supply." Another option is reducing fertilizer use, but the EPA model showed what any farmer could tell you that this results in a decline in yields. Another often discussed offset possibility would be for farmers to install an anaerobic digester, but those can cost hundreds of thousands of dollars and a federal AgSTAR program report found that anaerobic digesters are feasible for only what amounts to about 1 percent of Iowa farms. How would a typical farmer in Iowa be able to receive any significant benefit from selling carbon offsets?

4) In order for farmers to get paid for sequestering carbon dioxide in the soil, they would have to switch to no-till, but many farmers have already been using no-till for many years where it's possible to do so. Any farmer that was using no-till before the date we establish in law would not be eligible for payments. This could result in two neighboring

farmers using no-till where the one who had switched over years ago would not see a dime and the Johnny-come-lately would receive a check for doing the exact same thing that his neighbor had been doing all along. This would surely strike most farmers as fundamentally unfair. What can be done to address the fairness issue?

5) We've heard a lot about opportunities for farmers to sell offsets, but it's not always clear how exactly that would work in practice. Since the farmer would actually be selling on a carbon market and offsets would need to be verified and registered, I imagine the process would be a little different from signing up for a FSA program for instance. Could you walk me through the process a farmer would undertake to receive payment of an offset through let's say USDA, for sake of discussion?

6) While reviewing the panel's testimony, a theme emerged from a few of the statements. This theme is that customers of power costs will increase if OTC contracts are standardized and required to trade on an exchange. However, OTC contracts are so new, only developed in the last 10 years. And carbon OTC contacts are even more recent than that. Can you explain how an OTC carbon market is so critical to keeping costs low, when up until a few years ago, it didn't even exist?

7) Many of you have stated the need for additional transparency in the new market for carbon allowances and I agree that this will be critical to ensure the soundness and effectiveness of risk management for both investors and producers. Some of the testimony today has focused on the differences in carbon markets versus traditional agricultural and energy markets. Can anyone give me some specific examples of how to make these markets transparent if not in the same way that traditional CFTC markets are required to display transparency?

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Mr. Timothy Profeta
September 9, 2009

Chairman Tom Harkin

1) You said in your testimony that there is a fundamental trade-off between "Mitigating systemic risk and creating additional cost of posting margin." It seems that a lot of our legislative choices come down to this type of calculation, over-the-counter transactions where businesses don't need to put up a lot of cash to do business and exchanges where they expect you to put up some money to back your bets. But if the regulatory system does not deal effectively with systemic risk, such as that posed by OTC trading, are there not costs to that? I'm referring to the costs of using intermediaries like dealer-banks, or volatility, or economic downturns, or taxpayer-funded bailouts.

There are costs embedded in over-the-counter instruments. Cost comparisons typically compare the cash required to post margin for an exchange trade with the fact that OTC contracts may allow purchasers to pledge physical assets as collateral rather than posting cash margin or perhaps not require any collateral at all. By not requiring cash margin, OTC instruments may allow entities to use their cash flows for other purposes. OTC instruments may have transaction costs embedded in the price of the contracts, however.

Events over the past year make it clear that large markets failures can affect broad sections of the economy. Excessive risk-taking in the credit default swap markets, for example, has resulted in significant costs to society, not only through taxpayer-funded bailouts, but also through restricted credit markets and significant loss of value across securities markets. In terms of a carbon market, the cost of large scale market failures could include undermining the nation's approach to addressing climate change. Congress can take steps to avoid these types of failures in the carbon market by ensuring that market participants properly capitalize financial risks. Reduced leverage, larger capital requirements and prudent margin requirements are all necessary parts of the solution. However, the elimination of regulatory arbitrage is also a key to a stable market, with regulators having sufficient information to evaluate the risks to which market participants are exposed.

As Congress moves forward with climate change legislation, it will have to balance the risks and costs posed by OTC instruments with the flexibility and lower cash requirements that these instruments provide for market participants.

Senator Chuck Grassley

1) While reviewing the panel's testimony, a theme emerged from a few of the statements. This theme is that customers of power costs will increase if OTC contracts are standardized and required to trade on an exchange. However, OTC contracts are so new, only developed in the last 10 years. And carbon OTC contacts are even more recent than that. Can you explain how an OTC carbon market is so critical to keeping costs low, when up until a few years ago, it didn't even exist?

The evolution of the OTC market over the last ten years is highlighted by the increase in "exotic" derivatives. Plain-vanilla OTC derivatives, such as interest-rate swaps, have been around for approximately thirty years.

There are two arguments for how OTC instruments keep costs low. The first argument is that OTC contracts provide entities with the flexibility to determine the most cost effective means of hedging risk. Entities may choose OTC instruments because the instruments are not available on exchanges, such as long-dated contracts, or they need an instrument that is specifically tailored to their business needs. The second argument is that OTC contacts may allow companies to avoid tying up their cash reserves by posting margin. Exchange-traded products require initial margin and variation margin posted on a daily basis in cash (or near cash, such as government securities). A customized OTC contract can have specific parameters written into it that allows changes in the frequency for variation margin to be posted (i.e., not daily). OTC contracts may also allow companies to assign non-cash collateral as initial margin or, in some circumstances, not post collateral at all.

2) Many of you have stated the need for additional transparency in the new market for carbon allowances and I agree that this will be critical to ensure the soundness and effectiveness of risk management for both investors and producers. Some of the testimony today has focused on the differences in carbon markets versus traditional agricultural and energy markets. Can anyone give me some specific examples of how to make these markets transparent if not in the same way that traditional CFTC markets are required to display transparency?

There are different levels of transparency in the current commodities markets regulated by the CFTC, depending on the type of commodity and where the commodity trades. While broader market reforms currently under consideration may increase transparency in commodities markets, these efforts are still underway and it is impossible to predict what the final requirements will be. Because Congress would be creating the carbon market *de novo*, the legislation could ensure that the market regulator has jurisdiction over the entire marketplace and can track all transactions involving carbon allowances or associated derivative instruments, regardless of who is involved in the trade and where the trades occur.

Unlike traditional commodities, emission allowances issued pursuant to federal climate legislation will likely have unique serial numbers, allowing regulators to track ownership of the allowances with the proper reporting requirements. The legislation or implementing regulations could achieve transparency in the derivatives markets by requiring reporting from exchanges,

clearing organizations, trade repositories, and intermediaries such as brokers and dealers. If over-the-counter instruments are allowed in the carbon market, the rules could also require reporting directly to the regulator if the transactions are not cleared or reported to trade repositories.

Senator John Thune

1) Relative to other commodity markets, how large will the carbon market be? Is it possible to establish unique regulations that will result in efficiency and transparency of such a large carbon market within two years?

The Clean Energy Jobs and American Power Act would create a substantial new carbon market but would not be larger than many existing commodity markets. Economic modeling conducted by the U.S. EPA suggests that the price of emission allowances would likely be around $13 per allowance in 2015. Just over five billion allowances would be issued that year, resulting in an allowance market worth approximately $65 billion. As a general rule, commodities trade between 6 and 9 times their underlying value in the futures market. This suggests that the derivatives markets could exceed $390 billion in the early years. In comparison, the value of global crude oil markets traded on the Intercontinental Exchange (ICE) and NYMEX exceeded $17 trillion in 2008. Global futures for cotton and sugar trading on ICE reached $154 billion and $543 billion in 2008, respectively.

It is possible to create an efficient and transparent regulatory system to oversee trading in the carbon market. The major legislative proposals for regulating the carbon market, including the American Clean Energy and Security Act that passed the U.S. House of Representatives in June of this year and the Carbon Market Oversight Act of 2009, introduced by Senators Diane Feinstein and Olympia Snowe, are founded upon the existing CFTC regulatory model. Both bills adopt many aspects of the Commodity Exchange Act and add specific requirements to address the unique aspects of the carbon market, including some best practices from existing securities regulations. The CFTC would build upon its existing expertise rather than creating an entirely new regulatory system.

2) As you stated in your testimony, a cap and trade scheme will create two markets, a cash market that will trade allowances from the current year; and a derivatives market, that will allow the parties to purchase futures, options, and other instruments aimed at creating future rights to allowances. Should both markets be regulated by the CFTC? If so, what are the potential pitfalls of splitting the regulatory responsibility with another agency? If not, what additional resources will the CFTC need to carry out this responsibility within the next couple of years?

The CFTC is well-positioned to regulate both the spot and derivative markets for carbon allowances. The cash and derivative markets will be highly correlated and it would be most efficient to have one regulator with its eyes on the entire carbon market complex, including OTC derivatives. The recent failures in the credit default swaps markets highlight the problems caused by relying on multiple regulators to oversee various aspects of the same market.

Additional pitfalls for splitting regulatory authority include the potential for turf wars and a history of poor cooperation between various government agencies.

Generally, the CFTC will need sufficient resources to oversee the carbon market; the key to good regulation is a well-funded and vigilant regulator. I am not in a position to estimate the additional resources that will be necessary. Chairman Gensler and his staff may be able to provide you with a specific answer.

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Mr. Frank Rehermann
September 9, 2009

Chairman Tom Harkin

I am concerned that global warming's impacts – longer droughts and heat waves, increased pests, and increased disease may well be the biggest threat to farmers' abilities to make a profit.

1) Have you considered the potential drawbacks of inaction? How global warming will directly impact your industry?

The USA Rice Federation does not oppose responsible efforts to curb greenhouse gas emissions or climate change, including approaches such as increased use of renewable energy sources, nuclear energy, conservation, enhanced efficiencies, and other approaches that would not harm the U.S. economy or cost American jobs. We are deeply concerned that the cap and trade bill emanating from the House and similar approaches would be especially harmful to family farm operations like mine. The pending cap and trade proposal would substantially increase production costs and lower net income, threatening the economic viability of the farm. Meanwhile, I have little confidence that our trading partners will bind their farms and industry to equally rigorous emission reduction requirements, if any at all.

Senator Pat Roberts

1) You mention the AFPC study by Texas A&M. The representative rice farms experience lower average annual net cash income and at the same time an increase in annual costs. How does this study affect a producer's relationship with his or her lender? Credit is certainly tight already. Do you expect it to become even tighter if cap and trade legislation were to pass? How does this affect beginning farmers and ranchers?

The impact of pending cap and trade legislation ranges from even tighter margins for some to negative cash flow for others. The effect is to erode a producer's equity position, something lenders look unfavorably on when making lending decisions. For producers in the latter end of the range and especially for small and beginning farmers, the impact of cap and trade legislation could prove decisive in a lender's decision, while producers in the former range are on the bubble. This is why, in our testimony, we urge Congress to authorize the Commodity Credit Corporation to cover any increased production costs.

2) If H.R. 2454 were to become law, how would a rice farmer overcome the higher input costs? Would one 'good' year be enough to cover current costs plus addition direct and indirect costs associated with climate change?

We are concerned that some producers simply would not be able to overcome the higher costs and our concern is predicated on a normal or good production year as yield fluctuation from year to year is not as great as it is with respect to many other crops. Production costs and price are principle determinants on how a rice producer fares in a given crop year and the first factor is going to be greatly influenced by this legislation. Note that this is only the production side of the equation. Unlike most other commodities, rice must ordinarily be processed (i.e. milled) before it can be widely marketed in commerce, meaning there will also be increased costs borne by the producer in putting the commodity in the form necessary to market the crop. In fact, generally, rice farmers participating in cooperatives can expect to face a whole other hit in the form of lower patronage refunds, or dividends, on account of the cooperative's increased cost of doing business. And, all of this is predicated on the uncapped treatment of the agricultural sector precluding EPA-imposed performance standards or other prescriptions that the Agency could still impose under other provisions of the bill or the underlying Clean Air Act. There is no effective exemption for production agriculture and necessary processing is not even covered under the definition of agriculture sector. If cap and trade is to go forward, at minimum, there needs to be a clear exemption for agriculture production, including necessary processing.

Senator Chuck Grassley

1) I agree with your testimony that farmers can expect to see the cost of fertilizer, fuel, machinery and other inputs to increase under a cap and trade system. I believe this could make our farmers less competitive in a world economy. What types of actions on your farm do you anticipate taking to help offset these increased costs?

Senator, as a farmer, you can appreciate that if there is a clear and responsible way to cut production costs, a farmer will do it. Few stones have been left unturned in this respect. You also know that we are price takers, so we cannot increase the price on the market. One way to offset increased costs associated with cap and trade is through the sequestration or reduction of carbon. However, as I noted in my written and verbal testimony, today that is not an economically viable and proven option for rice farmers. The only choice we are left with is to absorb the increased costs and hope to still make ends meet.

2) The EPA analysis of the House-passed Waxman-Markey Bill showed that the vast majority of domestic offsets would go toward planting trees and forest management and only a small fraction would go toward agriculture. Can you discuss some of the obstacles to agriculture becoming a major source of offsets and if there are ways to overcome them?

In rice, we see no economically viable opportunity at present to avail ourselves of the offset program being discussed. We are working to develop some possibilities but we are simply not there yet. The primary objection to the forestation option is that farmers and ranchers are not foresters. Beyond that, even if we were to attempt to go that route, it would seem to me that it would involve an enormous upfront investment without the possibility for any real pay off till years down the road when the trees mature. This is a possibility for large pulp and paper companies but not to farm and ranch families.

3) Farmers' livelihoods depend on their competitiveness in a world economy. While the U.S. remains a strong player in agricultural trade, I believe that moving unilaterally on a climate change bill, without an international agreement; will put all U.S. industries at a competitive disadvantage. Right now, we have no guarantees that farmer's offsets will exceed the indirect costs they will undoubtedly have to shoulder. Please describe what you foresee as the international economic consequences our producers would encounter if a cap and trade system is put into place in the United States, but not elsewhere in the world.

Senator, we appreciate your leadership in rejecting what was on the table in the Doha Round negotiations late last year because the agreement meant deep and, in our estimation, unsustainable cuts to U.S. domestic support in exchange for what amounts to illusory concessions from our trading partners. We have no doubt that a similar tact is being taken with respect to global climate change and the curbing of greenhouse gas emissions, as evidenced by recent media reports of comments made by Indian officials. The combination of Doha Round and climate change legislation could very well result in the kind of severe hemorrhaging of American agriculture and the jobs that go with it that we experienced in the manufacturing sector earlier this decade. So, we appreciate the tough stance that you, Chairwoman Lincoln, Ranking Member Chambliss, and others have taken in both regards.

Senator John Thune

1) In the early years of a cap and trade system, what types of offset practices do you think will be used first? Planting trees? Conservation tillage?

As noted in our response to earlier questions, we are unaware of any proven viable opportunities for rice producers to generate and market offsets in the near future.

In a world of 6.7 billion hungry people, the great majority of whom do not have the means or disposable incomes that we Americans do, we strongly reject the notion that there is greater societal or global benefit to planting trees on our rice-fields than farming them. Ours are some of the most productive acres in the world, and we would rather continue to pursue the more noble purpose of feeding the world as long as we can stay in business.

2) As many of you know, agriculture or domestic offsets are capped under the House-passed cap and trade bill. Should these offsets be capped under a truly market-based system? Why or why not? Should international offsets be capped?

Although rice is unable to participate in the agricultural offset program, we believe that U.S. agricultural offset opportunities should not be capped. With respect to international offsets, among other things, it would seem that there would be enforcement issues that could undermine the integrity of the program, so the larger the international program the greater the uncertainty may be relative to the program's effectiveness. However, since

rice farmers are not able to effectively participate in the offset program, we have not closely examined the implications of capping international offsets. We believe the program should be structured such as to increase demand for U.S. offsets and therefore increase the value of such offsets, rather than disadvantage U.S. offsets relative to those in the international market.

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Ms. Julie Winkler
September 9, 2009

Chairman Tom Harkin

1) One of the more frequent complaints we hear about central counterparty clearing is that the costs associated with clearing are too expensive and that it would tie up capital that could be better invested. Could CME Clearport accept illiquid assets such as real estate or stocks and count that towards margin or capital requirements? Could you net cash and futures positions in a market where the cash and futures transactions are executed on the same platform? What other options are there to mitigate cost concerns of margin and capital requirements without compromising the integrity of the clearinghouse?

ANSWER: *Collateral that is readily convertible to cash is an essential element of the safety of a central counterparty clearing system and the only means to avoid the creation of systemic risk. The central counterparty (CCP) must hold sufficient liquid collateral to enable it to immediately meet the obligations of a clearing member—customer which defaults, since the CCP must immediately fulfill the obligations of the defaulting clearing member to each counterparty. There is no way to do this, without adding debt to the system, if the clearing house is holding illiquid assets, such as real estate, as collateral. The Green Exchange Venture currently uses CME Clearing as its CCP. CME Clearing has never experienced a default in its 110 year-plus history. CME Clearing does accept readily marketable securities, but discounts their value in a manner appropriate to recognize any likely illiquidity at the time that they must be sold to cover a loss.*

CCP's are not in the business of lending to customers. That would simply magnify the risk of operating a CCP and defeat the purpose of centralized clearing. If a customer with real estate assets needs to collateralize a cleared position, she may secure a loan from a bank and use the proceeds of the loan to purchase interest bearing securities, which may be used to collateralize her obligations to the CCP.

It is possible, in certain circumstances, to use a physical allowance to collateralize a derivative position. For example, a trader who is short an allowance futures contract may be able to collateralize his position, in whole or in part, with allowances of similar maturity.

2) If legislation establishing greenhouse gas emission allowances and offsets, required that all trading of the allowances, offsets and their derivatives take place on regulated exchanges, and if there is sufficient market interest for allowances 5, 10 or even 20 years in the future, would an exchange be able to offer futures contracts of longer duration? What are the practical considerations that would affect the decision to develop longer-term contracts?

ANSWER: *Some futures contracts are long-dated and have adequate liquidity. For example, NYMEX's Natural Gas futures contract extends out 12 years and CME's Eurodollar futures contract extends out 10 years. However, exchange traded derivative contracts of these durations are the exception, not the rule. Price integrity is the critical component to offering long-dated futures contracts as the clearinghouse must be able to determine adequate performance bond coverage for the contracts and protect against default. Each contract month listed in a long-dated futures contract that has open interest will require a daily settlement process to employ the daily mark-to-market functions of the CCP. If legislation created a cap-and trade program in which allowances were used for compliance over 5, 10, or 20 year periods then long-dated emissions contracts could be designed and offered by exchanges such as the Green Exchange Venture.*

However, there could be challenges in generating sufficient liquidity for the long-dated instruments on an exchange. Cap-and-trade participants may be focused on shorter-term compliance obligations involving near-term compliance deadlines that can be satisfied using actual allowances and offset credits that are in their possession or in circulation. The cap-and-trade program could address this by ensuring that there are longer-term vintages of allowances distributed and in circulation. This would provide market participants with a greater certainty about the physical supply of allowances in future years. This may result in greater hedging interest and trading activity in 5, 10 or 20 year carbon futures contracts. Without such certainty of the physical supply of allowances in future years, it is unlikely that adequate liquidity will exist for long-dated exchange-traded contracts.

3) I see you are opposed to a transaction fee, such as we've seen in the House-passed climate change legislation. If we were to propose a user fee on these transactions to fund regulatory agencies, what would be the best way to structure it – for example, per exchange member, per transaction, per month, per year?

ANSWER: *Funding for market oversight should be generated from more appropriate sources. Most cap-and-trade legislative proposals contemplate an auction for some portion of the allowances. For example, it would take less than one percent of the expected revenues from the auction proposed in the House's American Clean Energy Security Act to fund CFTC's current budget. By tying the funding of oversight resources to allowance auction revenues rather than exchange transactions, all relevant agencies (e.g., USDA, CFTC, EPA) will have resources for all of the elements that are necessary for effective emissions market oversight.*

Exchange users pay trading fees which are used to fund exchange operations and the exchange's self regulatory oversight to ensure and compliance with statutory and regulatory requirements. Any additional user fee, based on transactions or targeted at only members of exchanges, will add transaction costs and make less or unregulated trading venues more attractive compared to regulated exchanges. This will impair liquidity and defeat efforts to encourage transparent, regulated trading markets.

Senator Chuck Grassley

1) While reviewing the panel's testimony, a theme emerged from a few of the statements. This theme is that customers of power costs will increase if OTC contracts are standardized and required to trade on an exchange. However, OTC contracts are so new, only developed in the last 10 years. And carbon OTC contacts are even more recent than that. Can you explain how an OTC carbon market is so critical to keeping costs low, when up until a few years ago, it didn't even exist?

ANSWER: *First, there seems to be a mistaken impression regarding the length of the existence of OTC contracts. Such contracts have actually been utilized for more than 20 years in energy commodities. Second, the reason such contracts came into existence is precisely because they provided innovative, lower costs ways to finance investments; indeed, in some cases, they enabled projects to get financed that otherwise could not have gotten financed at all. Furthermore, they will be the most vital in the early days of any new industry or new industry phase, which will clearly be the scenario in place upon passage of emissions control legislation. This is because the sector will essentially be "inventing" itself—that is, ramping up from a state of de minimis investment in demonstration projects to a full scale commitment to transform the entire societal energy infrastructure. No one yet knows how this will most efficiently be accomplished, so there will be no way to accurately standardize the necessary transactions.*

As was stated in my written testimony, the OTC market complements standardized exchange traded products by providing products customized to a regulated entity's emissions and time horizon. Such customization is necessary for successful financing of carbon offset projects, and for structuring long-term hedging transactions that underpin investments in emissions reduction or clean energy technologies. If such OTC contracts are required to efficiently finance such projects, forcing all trading onto exchange-based platforms is likely to increase costs to utility customers.

Exchange cleared transactions require posting of liquid collateral; some entities may be able to secure more flexible terms for collateralizing their obligations in the OTC market. For example, a customer in the OTC market may be allowed to collateralize its obligations on an OTC contract by granting a lien on a physical asset. The ability to collateralize obligations to counterparties by means of liens on physical assets may

benefit power producers or agricultural offset project developers. Lower financing costs for OTC hedging transactions may translate into lower power costs to consumers.

2) Many of you have stated the need for additional transparency in the new market for carbon allowances and I agree that this will be critical to ensure the soundness and effectiveness of risk management for both investors and producers. Some of the testimony today has focused on the differences in carbon markets versus traditional agricultural and energy markets. Can anyone give me some specific examples of how to make these markets transparent if not in the same way that traditional CFTC markets are required to display transparency?

ANSWER: *We believe that greater transparency should be required of the OTC carbon market and that all carbon-related OTC positions should be reported to the CFTC. This reporting combined with the high level of transparency available through the Green Exchange Venture will provide the additional transparency that is needed for oversight of a U.S. carbon market.*

As was stated in my written testimony, CME Group will provide the market and trade surveillance services to the Green Exchange Venture. CME's highly trained regulatory staff will implement audit and compliance programs to monitor existing markets for fraud and manipulation. Green Exchange Venture also has a reliable means to provide transaction data to the CFTC and these are divided into five broad categories: trade data, time and sales, order data, volume and open interest data and reference data. On behalf of the Green Exchange Venture, CME currently reports cleared trade data (pit, electronic, and ex-pit transactions) on a daily basis to the CFTC.

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Mr. Fred Yoder
September 9, 2009

Chairman Tom Harkin

You've indicated that you think those farmers who have already engaged in practices that reduce greenhouse gas emissions should be rewarded for their early actions.

1) Let's take the example of a corn farmer who started to use no-till practices in 2006. How should those practices over the past few years be treated in global warming legislation? And, does it make a difference whether the farmer sold carbon sequestration credits derived from those practices on the Chicago Climate Exchange?

Senator Pat Roberts

1) In your testimony, you mention "economic analyses have indicated that a robust offset program will significantly reduce the costs of a cap and trade program." Since analysis shows both significant agriculture production cost increases and increased commodity prices due to a reduction in farm land acreage even with an offset program, won't consumers still feel the effects of these higher costs and prices?

Senator Chuck Grassley

1) I agree with your testimony that farmers can expect to see the cost of fertilizer, fuel, machinery and other inputs to increase under a cap and trade system. I believe this could make our farmers less competitive in a world economy. What types of actions on your farm do you anticipate taking to help offset these increased costs?

2) You mention that treatment of early actors, especially those who have adopted conservation tillage practices prior to 2001, should not be penalized in the carbon offset program developed. Do you have recommendations on how to address this issue, in particular for the earliest adaptors as you have highlighted?

3) EPA numbers suggest very high cost increases to use coal. Since the Corn Belt primarily uses coal to provide our energy needs, do you believe that fuel switching will occur? To which types of fuels? What does this mean for our rural communities?

4) The EPA analysis of the House-passed Waxman-Markey Bill showed that the vast majority of domestic offsets would go toward planting trees and forest management and only a small fraction would go toward agriculture. Can you discuss some of the obstacles to agriculture becoming a major source of offsets and if there are ways to overcome them?

5) Farmers' livelihoods depend on their competitiveness in a world economy. While the U.S. remains a strong player in agricultural trade, I believe that moving unilaterally on a climate change bill, without an international agreement; will put all U.S. industries at a competitive disadvantage. Right now, we have no guarantees that farmer's offsets will exceed the indirect costs they will undoubtedly have to shoulder. Please describe what you foresee as the international economic consequences our producers would encounter if a cap and trade system is put into place in the United States, but not elsewhere in the world.

Senator John Thune

1) If under a cap and trade system, ag producers are asked to sign a long-term contract, but only receive benefits of carbon sequestration for a few years or until the soil is saturated with carbon, do you think your members are likely to participate?

2) In the early years of a cap and trade system, what types of offset practices do you think will be used first? Planting trees? Conservation tillage?

3) Do you believe fertilizer prices will increase under a cap and trade system? If so, how high may fertilizer prices increase? Do you believe we will have a greater reliance on foreign sources of fertilizer?

   In the later years of the House-passed cap and trade bill, "energy intensive trade exposed" industries including the fertilizer industry, no long receive free allowances. What impact will that have on the fertilizer industry and the price of fertilizer? If most early acres of conservation tillage are saturated with carbon at this point, what impact will these two scenarios have on the cost-benefit analysis for feed grain farmers in the Midwest?

4) How should Congress treat the early actors of conservation practices? For example, South Dakota already had 2.8 million acres in no-till, which would not receive credit under the House-passed climate change bill since these acres were in no-till before 2001. Should these producers be able to participate in the carbon market? If so, how should these acres be treated?

5) As many of you know, agriculture or domestic offsets are capped under the House-passed cap and trade bill. Should these offsets be capped under a truly market-based system? Why or why not? Should international offsets be capped?

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Mr. Andy Beckstoffer
September 9, 2009

Chairman Tom Harkin

You mentioned this briefly in your written testimony, but I want to spend a little bit more time discussing the impact that climate change is already having on your crops. I think this is an important topic to address because it illustrates the fact that there is a cost to doing nothing when it comes to climate change. For example, you mentioned more heat spikes, higher nighttime temperatures, and new pests and diseases as challenges that are beginning to emerge for your industry.

Even if we do not yet fully understand how all of these things will impact your business as a winegrape grower, surely these are challenges that concern you.

1. As a winegrape producer with over 30 years of experience in agriculture, could you talk a bit more about the business risks that climate change presents to your operation now and in the future?

On page five of my testimony I discuss more frequent heat spikes to which we have adjusted by installing trellises that we can alter on short notice to deal with heat spikes. We can adapt with proper viticultural practices at considerable expense, but it is necessary to maintain the quality of our premium winegrapes. There have been limited studies to assist the wine community in understanding the potential impacts of climate change to the quality and productivity of winegrape vineyards. However, the data we collect from vintage to vintage shows that we can adapt and that the maximum temperatures haven't changed so much – but that the minimum temperatures have risen, and that is something for which we must continually make adjustment. It is the extreme heat incidents and temperature changes, not the averages, that represent the most risk.

There is no doubt in my mind that much more needs to be done to identify suitable rootstocks and conduct new rootstock breeding programs to facilitate our adaptation. Of course, that is a years long – if not decades long – process and one that must be conducted in the context of changing consumer taste profiles and expectations. There is a five-year delay from the time I plant a vineyard to the time it reaches the consumer in a bottle. North Coast development costs for a new vineyard run from $25,000 to $40,000 . Our capital investment is made for at least a 25 year period. That is why we invest so heavily in cutting-edge viticultural practices to adapt to things like changing temperatures.

Irrigation is critical to adaptation. The lower snow pack forecast by the experts and changing rainfall patterns present a very real risk to our businesses. Our quality, our productivity, and our profitability are dependent upon adequate water which we manage precisely with the most advanced technology in plant monitoring and water application.

The California Sustainable Winegrowing Program is an integrated whole farm approach to decision making that helps participants better understand and evaluate the trade-offs and impacts of each practice. It is in an important tool for helping us adapt to changing resource and regulatory concerns.

The uncertainties presented by climate change and the scarce allocation of resources like water underscore the most important investment government can make: funding agricultural research and extension to assure that farmers and ranchers have the ability to continue adapting to meet the food and fiber needs of the world's rapidly expanding population.

2. Do you have any suggestions on how we could better educate farmers in other parts of the country about the implications to their livelihoods if nothing is done to address climate change over the decades to come?

Senator, this is surely not my area of expertise! However, the Committee might consider conducting field hearings in different regions of the country. It should also conduct hearings for researchers and extension personnel to provide information about the potential impacts of climate change to farmer and rancher livelihoods.

Senator Chuck Grassley

1) The EPA analysis of the House-passed Waxman-Markey Bill showed that the vast majority of domestic offsets would go toward planting trees and forest management and only a small fraction would go toward agriculture. Can you discuss some of the obstacles to agriculture becoming a major source of offsets and if there are ways to overcome them?

While considerable research and demonstration of the advantages of no-till and minimum tillage practices has been done, not nearly enough research has been done to quantify the benefits of other practices and document their value as measurable, verifiable carbon and GHG offsets. Just a few of the ag practices that have the potential to produce significant offsets include cover crops; modified fertilizer techniques; crop and residue waste management schemes; biochar; and the role of perennial crops – vineyards; orchards; hay; and dedicated fuel crops.

This is why it is critical that USDA with its technical and scientific expertise of agricultural and farming practices have the primary role in developing ag GHG reduction or sequestration parameters for carbon offset protocols.

We plant our vineyards for an economic life of 20 years. Unless we are given credit for past and ongoing carbon sequestration, this legislation is of very little value to winegrape growers.

2) Farmers' livelihoods depend on their competitiveness in a world economy. While the U.S. remains a strong player in agricultural trade, I believe that moving unilaterally on a climate change bill, without an international agreement; will put all U.S. industries at a competitive disadvantage. Right now, we have no guarantees that farmer's offsets will exceed the indirect costs they will undoubtedly have to shoulder. Please describe what you foresee as the international economic consequences our producers would encounter if a cap and trade system is put into place in the United States, but not elsewhere in the world.

Farmers and ranchers must not be put at a competitive disadvantage in international trade. California winegrape growers face vigorous competition from other wine producing countries with lower costs of production.

Senator John Thune

1) In the early years of a cap and trade system, what types of offset practices do you think will be used first? Planting trees? Conservation tillage?

Those practices for which research has already been completed and protocols approved are planting trees (forestry) and conservation tillage. Therefore they are best positioned for measurable and verifiable offset credits. There is great potential for other ag practices to produce significant offsets and other environmental benefits from cover crops; modified fertilizer techniques; crop and residue waste management schemes; biochar; and the role of perennial crops – vineyards; orchards; hay; and dedicated fuel crops.

It is very important that winegrapes and other perennial crops be given credit for carbon sequestration of past and continuing practices. We plant our vineyards for an economic life of 20 years. Thus, if credit is given only for new plantings, the legislation would be of little help to winegrape growers.

2) As many of you know, agriculture or domestic offsets are capped under the House-passed cap and trade bill. Should these offsets be capped under a truly market-based system? Why or why not? Should international offsets be capped?

Domestic offsets should not be capped.

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Mr. Luke Brubaker
September 9, 2009

Chairman Tom Harkin

In your testimony you mentioned being able to sell carbon credits for reducing greenhouse gas emissions through the use of your digester.

1) Can you tell us more about the economics of that project, please?

a. What was the total project cost and what is the annual income.

- Total project cost was $1.25 million dollars.
- This year's income will be approximately $200,000.00 for the sale of electric.

We derive a savings of approximately $40,000 as a result of not needing to buy bedding for the cows. We separate the solids from the liquid and use it to bed the cows instead of buying wood shavings or saw dust.

We sell separated solids to other farmers. $10,000 was derived from the sale of solids.

Sale of credits sold: about one-half sold for 20 years. What we sold equals over $100,000 which when invested for 20 years approximately doubles the money.

b. How many credits does your system generate, how do you sell the credits, and at what price?

- KW = tons of carbon to sell taken out of the air.
- Sold to a trading company.
- The market fluctuates.
- We sold at a good time--$3.00 to $4.00 a ton.
- I believe the market is a lot less now.

c. How does the income from the credits compare with the income from selling the electricity?

- A lot less for the sale of credits than sale of electricity.
- With a good cap and trade bill, it could mean a lot more money for the credits.

Senator Pat Roberts

1) How many head of cattle does it take to make a methane/manure digester functional and economical?

   - A good number would be 500 head or more.

2) What is the annual operation and maintenance cost for a methane digester?

   - $10,000 to $25,000; this depends on the amount of repairs.

3) Does the functionality of a digester change with head count, feed content, or seasonal change? If so, how does this affect normal day to day operations and management ability?

   - Yes. In the summer, if there is more water in the manure, because of cooling the cows, it takes more volume of manure to make the same amount of electricity.

   - Adding other food products make extra electricity.

   - A little more setup on the computer system to add other feed or food by-products.

4) Do you believe a digester would work on a cow-calf operation, feeder cattle operation or for a small feedlot?

   - If the manure is in a liquid form that the manure can flow, it could work.

   - Getting the manure to the digester as quickly as possible is the key before it loses the gases into the air.

Senator Chuck Grassley

1) The EPA analysis of the House-passed Waxman-Markey Bill showed that the vast majority of domestic offsets would go toward planting trees and forest management and only a small fraction would go toward agriculture. Can you discuss some of the obstacles to agriculture becoming a major source of offsets and if there are ways to overcome them?

   - I believe agriculture has a great opportunity with the use of conservation practices: no-till, cover crops, and methane digesters.
   - The bill must more than offset any higher cost the farmer would incur.
   - I do believe planting trees and forest management would be a big part of the program, but I am not sure if would benefit most of agriculture.

2) Farmers' livelihoods depend on their competitiveness in a world economy. While the U.S. remains a strong player in agricultural trade, I believe that moving unilaterally on a climate change bill, without an international agreement; will put all U.S. industries at a competitive disadvantage. Right now, we have no guarantees that farmer's offsets will exceed the indirect costs they will undoubtedly have to shoulder. Please describe what you foresee as the international economic consequences our producers would encounter if a cap and trade system is put into place in the United States, but not elsewhere in the world.

   - I think your statement is very true.
   - If a bill is written wrong, it would be devastating to agriculture.
   - Imports may have a tendency to come into the country like fertilizer, dairy products and fruits, etc. if U.S. products are priced out of the market.

Senator John Thune

1) In the early years of a cap and trade system, what types of offset practices do you think will be used first? Planting trees? Conservation tillage?

   - In order: Planting trees, grasslands, no-till, cover crops, and methane digesters.

2) As many of you know, agriculture or domestic offsets are capped under the House-passed cap and trade bill. Should these offsets be capped under a truly market-based system? Why or why not? Should international offsets be capped?

   - My farming operation put forth a significant capital investment in order to install the methane digester, which is a clean, efficient and an American source of renewable energy. I do not think it would be a good idea to cap domestic agricultural off-sets as proposed in the U.S. House version of the Climate Change legislation. There does not seem to be any sound policy rationale for placing a cap on such offsets, like those produced by my farming operation, that supply clean and efficient domestic energy and provide a valuable environmental benefit.

     There may, however, be appropriate reasons for considering caps on international offsets for two reasons. First, many people argue that this legislation would drive American jobs off-shore. Without a cap on foreign off-sets, the purchase of such off-sets may also be driven off-shore, where there is little regulation and these off-sets would be feasibly cheaper than the same type of off-sets in the United States. Secondly, I would call it bad policy to offer the same countries the ability to sell "off-sets" when they have not adopted any caps on emissions. Such an approach would truly put the American farmer and businessman at a competitive disadvantage.

     My recommendation to the Committee would be to allow international off-sets to be considered for purchase, only after a certain level of domestic off-sets have been utilized, set at a sufficiently high level to assure that all agricultural producers have the opportunity to benefit from such a program. This approach shows a true investment in the American economy (at this much needed time) and does not totally create a trade barrier with other nations.

3) As you know, many dairy and hog producers are going through a historic economic downturn in their respective industries. Several hog and dairy producers are tens of thousands of dollars of equity with each passing week. Any analysis that shows a positive impact on these producers assumes that operations of a certain size will install an anaerobic digester to benefit from carbon offsets. Considering the high costs of this equipment and the fact that the climate change legislation would start in 2012, do you believe that most producers would be able to finance this type of equipment in the next 12 to 18 months?

- Thank you for being aware of this. I am a dairy farmer and I know.
- I don't have any analysis that shows a positive impact.
- There is a very easy way to capture carbon offsets.
- You can cover any size manure pit and lagoon and flare off the gases.
- if there is a good price for credit; this would be a very reasonable way to capture credits.
- Maybe a small grant to help cover lagoons would help in these low commodity prices for hog and dairy farmers.

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Chairman Gary Gensler
September 9, 2009

Chairman Tom Harkin

1) As Congress considers reforms of the Commodity Exchange Act, what modifications would be necessary to provide the authority for CFTC to effectively regulate trading in both the cash and futures markets for emission allowances and offsets?

   A. Currently, the CFTC has exclusive jurisdiction over futures contracts, options on futures contracts, and options for emission allowances and offsets traded on a Designated Contract Market (DCM) or Derivatives Transaction Execution Facility (DTEF). The CFTC has only limited enforcement authorities over cash market transactions.

   If Congress chose to have the CFTC regulate cash market transactions in emission allowances and offsets, the Commodity Exchange Act (CEA) would need to be amended to create such authority.

   Depending on whether contracts for emission allowances and offsets fit the definition of excluded or exempt commodity under the CEA, futures, options on futures, and options for allowances and offset could be conducted bilaterally and be largely excluded from the CFTC's authority. To avoid this, Congress would have to provide the CFTC with explicit authority over carbon emission allowance and offset swaps.

Senator John Thune

1) H.R. 2454 allows third parties, such as investment banks or foreign nations to participate in the carbon market. In other words, third parties that are not directly associated with carbon offsets would be able to purchase these credits on an exchange. Does this leave the carbon market open to undue influence or manipulation? Under this scenario, would a third party or a group of third parties be able to drive up the price of carbon by purchasing large amounts of carbon allowances or available carbon credits?

   What role will speculators play in the carbon market? How will you define a speculator? How will you define excessive speculation?

   A: A primary indicator of the ability to effect a manipulation of commodity markets is the ability to exert market power. Past enforcement cases brought by the CFTC have involved both speculators and commercial hedgers who accumulated and sought to exert

market power. Any party or groups of parties acting in concert could conceivably attempt to corner or squeeze a market independent of whether there are commercials or speculators.

The role that speculators will play in a carbon market will ultimately be dependent upon whether Congress enacts any changes to existing law. Under current law, speculators are free to participate in emissions derivative markets.

The CFTC has not defined what constitutes excessive speculation.

2) As you know, the House cap and trade bill gives jurisdiction over the carbon-based derivatives to the CFTC, with the Federal Energy Regulatory Commission overseeing cash transactions in the allowances themselves. Standalone legislation has been introduced in the Senate that would give the CFTC jurisdiction over both the derivatives and cash transactions of the carbon market. Would you compare and contrast the benefits or drawbacks of giving the CFTC jurisdiction over both the derivatives and cash transactions of the carbon market?

   A. The CFTC does not currently regulate any cash market. However, the agency has extensive experience in regulating centralized derivatives markets. The benefit of giving the CFTC oversight of cash carbon markets is that cash carbon trading would be occurring under federal oversight and conceivably be subject to regulation ensuring transparency, openness and fair and orderly markets—depending on what authorities Congress sought to provide.

      The CFTC is not aware of any drawbacks to such an approach beyond the fact that such an approach would require significant additional resources.

3) We have heard estimates that the future carbon market under a mandatory cap-and-trade proposal will total several billions of dollars up to two trillion – according to CFTC Commissioner Bart Chilton. What is your estimate for the carbon futures market? What it your estimate for the carbon cash market? What is the size of these markets today?

   The CFTC has no estimates of the expected size of the carbon futures markets under HR 2454. However, there are some estimates available for the expected size of the carbon cash market based on the cap-and-trade regime under the Waxman-Markey legislation.

   These estimates are
   $60 billion in value in 2012 (Congressional Budget Office)
   $72 billion in value in 2012 (Energy Information Administration)
   $76 billion in value in 2020 (Environmental Protection Agency).

   Currently futures and options contracts on the carbon emission (greenhouse gases) are traded on two futures exchanges: Chicago Climate Futures Exchange (subsidiary of the Chicago Climate Exchange) and NYMEX.

Products traded are
Regional Greenhouse Gas Initiative (RGGI) CO2 allowance futures and options contracts;
Carbon Financial Instrument (CFI) futures and options contracts;
Climate Action Reserve offsets futures and options contracts;
Certified Emission Reduction (European) futures and options contracts;
European Union Allowance (European) futures and options contracts.

The notional value for the subject contracts for the 2009 calendar year was

Total value:	$232,258,536.19
Total NYMEX:	$171,429,033.05
Total CCFE:	$130,633,411.50

Over-the-counter transactions are neither regulated nor transparent so there are no reliable statistics for carbon emissions related over-the-counter transactions.

4) As you know, agriculture or domestic offsets are capped under the House-passed cap and trade bill. Should these offsets be capped under a truly market-based system? Why or why not? Should international offsets be capped?

   A. The CFTC does not have a viewpoint on whether or how caps should be implemented. As the CFTC understands it, caps are intended to achieve particular policy objectives related to ensuring an overall reduction in carbon emissions and as a cost containment mechanism. Such caps could clearly have an impact on market structure as they have the potential to impact the available supply of carbon instruments, but what that impact might be is difficult to predict until more is known about how carbon markets will be structured.

5) How will the CFTC work with EPA to determine when or if carbon allowance reserves should be tapped? Are these reserve thresholds adequate to keep carbon costs steady?

   A. The CFTC is not currently a price setting agency. It regulates to ensure fair and orderly markets, not to achieve particular price objectives. The CFTC has not conducted any economic analysis of potential carbon reserve proposals.

   If the CFTC were directed to oversee a carbon reserve program the CFTC would implement the statutory directives and work with other agency partners that would also have an interest in carbon markets. The CFTC has broad authority to share data and information with other federal and state regulatory authorities and would use this authority appropriately to achieve the objectives set out in the statute.

Joseph R. Glace
Vice President and Chief Risk Officer
Exelon Corporation
Responses to Questions for the Hearing Record
November 6, 2009

Questions from Chairman Tom Harkin

1. **a.) Can you break down the costs of the over-the-counter transaction for me?**

The costs vary by transaction. In an over-the-counter (OTC) transaction, the costs are typically far less than the cost of trading on an exchange, particularly for creditworthy companies like Exelon. Exelon's credit rating enables its counterparties to extend to it some amount of unsecured credit. Exelon can also use standby letters of credit or cross-commodity netting through master netting arrangements to provide collateral or minimize a counterparty's exposure to it. Although Exelon typically does not do so, others sometimes offer liens on assets to enable hedging transactions. All of these measures can yield the same level of payment security at a much lower cost than the cost of posting margin on an exchange for a comparable exchange-traded product.

Consider the following example. Assume that in 2009 an electric power supplier wanted to enter into a fixed price power supply agreement with a utility for 300 megawatts of power in 2012 to hedge against the price volatility in the short term or spot market for power and lock in its income stream. Assume further that the market price the supplier gets from the utility is $50 per megawatt hour. At the power supplier's current credit rating, it is typically extended an unsecured line of credit of about $20 million. Given the power supplier's unsecured line of credit, it would not have to post any collateral at the time of the deal's execution. It would only have to post when the counterparty's exposure increases above the $20 million threshold.

In contrast, as is demonstrated in the example below in response to the next question, doing the same transaction on an exchange through a futures contract or through a bilateral transaction that clears on an exchange, could cost the power supplier millions of dollars in up front collateral, even though at the time of the trade, the position creates no exposure for the exchange.

b.) How much does it cost to conduct business on exchange versus off-exchange?

The primary cost of conducting business on an exchange, as compared to off-exchange, is the substantial margin requirements mandated for clearing or trading futures contracts on exchanges. Typically an exchange will require an initial margin in the range of five to fifteen percent of the total notional value of

the transaction (the total quantity times the price). If a transaction were required to be cleared on an exchange, the exchange would determine the market value of the position on a daily basis. If the position becomes more valuable (from the exchange's perspective) because market prices have changed since the date of the transaction, the exchange will require the posting of additional "variation" cash margin. In addition to these margin costs, parties trading on an exchange also incur additional costs associated with establishing a credit facility, such as a loan or letter of credit, for the transaction and the interest costs of the required margin.

The following hypothetical attempts to provide a more specific sense of the costs of transacting business on an exchange. Like the example provided in response to question 1(a), assume that in 2009 an electric power supplier seeks to enter into a fixed price power supply agreement with a utility for 300 megawatts of power in 2012 to hedge against the price volatility in the short term or spot market for power and lock in its income stream. Transacting such a deal on an exchange would be costly because the credit line required to do business on the exchange is substantial. The power supplier would first have to meet a 5% initial margin for its hedges on the exchange. Assuming a $50 per megawatt-hour market price, the power supplier would have to put up $6.6 million dollars of initial margin and would have to set aside another $66 million dollars for potential variation margin. Assuming the power supplier has a BBB credit rating, the interest expense on the $6.6 million could be about 5% annually. The power supplier could thus incur over $1 million in interest expense on the initial margin. The supplier might also incur about $1.1 million more in expense to set up a credit facility for the $72.6 million needed to meet the margin requirement for the deal. These two expenses could add over $0.80 per megawatt hour in transaction costs. More importantly, if prices moved adversely against the position after the utility entered into the hedge, the margin requirements could increase as would the interest expense. If the adverse price move was 50% during 2009, an additional $8 million in interest expense could be incurred through 2012, adding another $3.10 per megawatt hour to the cost of providing the power. So the power supplier ultimately faces a potential of $3.95 per megawatt hour, or roughly $10 million, in interest expenses to hedge the deal, which represents about an 8% increase in power costs. In the normal course of business those costs would be passed along to the utility and its customers.

c.) What are the indirect costs associated with wider bid-ask spreads in the over-the counter markets compared to exchange trading?

The indirect costs associated with OTC transactions as compared to exchange traded transactions would be negligible. There are some legal costs associated with negotiating the agreements and addressing potential disputes that could arise. Additionally, administrative and bookkeeping needs associated with managing multiple counterparties would add some cost, but none of these costs are substantial.

d.) How much more would electricity cost your customers if you could only hedge on regulated markets with stricter margin and capital requirements?

In Exelon's view, it is very possible that a requirement that virtually all trading activity occur on organized exchanges, either through clearing or futures contracts, could increase the power prices we charge utilities and other customers we serve by anywhere from five to fifteen percent.

Questions from Senator Chuck Grassley

1. **While reviewing the panel's testimony, a theme emerged from a few of the statements. This theme is that customers of power costs will increase if OTC contracts are standardized and required to trade on an exchange. However, OTC contracts are so new, only developed in the last 10 years. And carbon OTC contracts are even more recent than that. Can you explain how an OTC carbon market is so critical to keeping costs low, when up until a few years ago, it didn't even exist?**

   First, with respect to the age of OTC markets, Exelon notes that OTC derivative transactions have been widely used for well over a quarter of a century. Their use was already so widespread by the early 1980s that the predecessor to the current International Swaps and Derivatives Association first developed its standard trading master agreement for them at that time. Currency swaps were among the first types of derivatives used to hedge risk – in that case, the risk associated with changes in the relative value of currencies. Following the abandonment of the Bretton Woods system for monetary management in the early 1970s, companies doing business internationally needed a way to hedge the risk that the value of transactions would be adversely affected if denominated in foreign currency.

   Second, we believe that OTC markets will help keep the cost of compliance with carbon emissions restrictions lower than it would be without them because the cost of over-the-counter instruments will be lower than exchange traded instruments. Margin requirements will be lower, interest expense will be less, and there will be relatively more market liquidity than there otherwise would be.

2. **Many of you have stated the need for additional transparency in the new market for carbon allowances and I agree that this will be critical to ensure the soundness and effectiveness of risk management for both investors and producers. Some of the testimony today has focused on the differences in carbon markets versus traditional agricultural and energy markets. Can anyone give me some specific examples of how to make these markets transparent if not in the same way that traditional CFTC markets are required to display transparency?**

An equivalent level of transparency can be achieved through the establishment of a simple mechanism for the reporting of actual over-the-counter transactions at regular intervals. Exelon and many other energy companies currently report all of their transactions of certain types to industry publications that publish indices, and in many cases, we do this daily. We have systems in place that enable us to do this. The CFTC could impose a requirement for companies to develop an on-line system to enable such reporting. The details need not be included in final legislation; the reporting requirement could be included in the statute and the CFTC could be directed to conduct a rulemaking to determine the appropriate level of reporting, the frequency of reporting, and the measures to be taken to ensure confidentiality.

In our view, this would have a substantial deterrent effect on would-be manipulators. Exelon has endorsed extending the CFTC's existing anti-manipulation authority to over-the-counter derivative transactions. An electronic reporting system would be necessary if that proposal were adopted. The CFTC would need to have access to information about transactions to enable it to fulfill an expanded regulatory oversight and enforcement function.

Questions from Senator John Thune

1. **a.) Can you provide an example of why two market participants would need to use the Over the Counter (OTC) market for a transaction in the carbon market place?**

Assuming cap and trade legislation becomes the law of the land, emitters will either be allotted, or will need to acquire, an allowance for each ton of greenhouse gas emitted from sources that are subject to the law's limitations. Emitters will be subject to a compliance obligation, which they will be able to meet either through allowances they are allotted, allowances they buy, or through reductions in actual greenhouse gas emissions. In addition to buying additional allowances, however, a market for derivatives will likely develop, which market emitters will be able to tap as a means to hedge their longer-term financial risks associated with compliance. The particulars of these hedges will be a function of the details of the cap and trade plan that is ultimately adopted.

These hedges will be developed only if an over-the-counter market for them is permitted to exist and grow. Once such a market develops and evolves, it may be that certain of its products could be traded or cleared on exchanges, just as some products used by the energy industry are now traded or cleared on exchanges. Accordingly, emitters might not absolutely *need* to use over-the-counter derivatives. They would however, benefit greatly from the reduced payment security costs associated with trading on exchanges. We have attempted to detail the additional costs that would be incurred from trading or clearing on exchanges in our answer to question 1(b) from Chairman Harkin above.

b.) In your testimony, you mentioned that forcing these unique transactions onto an exchange would dramatically drive up costs. Could you provide this committee with a better perception of why this requirement would increase costs, and how much would costs increase on account of such a requirement?

Please see our answer to questions 1(b) and 1(d) from Chairman Harkin above.

c.) With regards to these transactions, what specific types of information should be reported to ensure transparency while still maintaining the confidential information of the emitter and trader?

Please see our answer to question 2 from Senator Grassley. In addition, we note that the information that would likely need to be reported would be the basic terms of each transaction, such as the fixed price, the floating price, the quantity swapped, and the term of the transaction. There would undoubtedly be concerns about the confidentiality of the information reported because it would expose each reporting entity's market and trading strategies and other business sensitive information. The CFTC would have to provide a means to ensure that such information is kept confidential, at least for a period of time while it is still sensitive. To ensure confidentiality, rules could provide that only the CFTC and its enforcement staff would have access to the information, and perhaps that the information provided would not be subject to the Freedom of Information Act's (FOIA) disclosure requirements because it would qualify under FOIA Exemption 4[1] that excludes trade secrets and other confidential business information from disclosure. This is the case with information provided to other agencies with enforcement obligations and authority (for example, information provided to the Justice Department pursuant to a Second Request response under the Hart-Scott-Rodino antitrust statute).

[1] 5 U.S.C. § 552(b)(4) (2006).

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Dr. Dave Miller
September 9, 2009

Chairman Tom Harkin

1) In your written testimony, you discussed the challenges of establishing standards for offsets. You also mentioned the costs associated with assuring the value of offset activity and that the cost could become prohibitive. Given your discussion of complicated design protocols and uncertainty about valuing offsets, would you support discounts on offsets as a mechanism to address some of the valuation and verification problems inherent in an offset program? If so, should the offsets be discounted by a standard percentage or should the discount reflect expected leakage or nonperformance?

Response: Discounts that are applied to the scientifically-determined crediting rate are an effective and efficient means of addressing uncertainties involved with quantification of agricultural and forestry offsets. The use of a discount factor can also adjust for systemic offset risk factors such as post-contract reversal risk and non-project specific leakage. Use of a discount in this manner has everyone "paying into" a risk pool that the administrator would manage to cover any unintentional reversals or to make sure the agricultural and forestry offsets are delivering at least the environmental benefits that are being credited.

We would recommend that during the initial crediting period of an offset program that a standard percentage discount be set for each type or class of offsets (i.e. soil sequestration offsets, afforestation offsets, managed forest offsets, etc.) that takes into account these estimated risks. We would recommend that during the initial crediting period that USDA undertake activities to specifically document and quantify the actual risks of contract reversals, leakage and other factors and then adjust the discount factor during the second crediting period based on these findings.

Based on the experience of AgraGate Climate Credits as an aggregator of soil offsets under the protocol of the Chicago Climate Exchange (CCX), we believe the 20% discount factor applied by the CCX is more than sufficient to account for potential post-contract reversals and quantification uncertainties.

Senator Chuck Grassley

1) Do you believe that it is possible for the average farmer, in Iowa or elsewhere, to recover his increased input costs, in terms of higher fuel and fertilizer prices for example, that

would be caused by a cap and trade system like in the Waxman-Markey Bill, by selling offsets?

The Waxman-Markey Bill has provisions that would make sequestration offsets from agriculture (and possibly forestry) "term credits." If that is the case, then we think it would be highly unlikely that farmers in Iowa or elsewhere would receive income from carbon offsets. In our opinion, term credits will be so highly discounted by the market since they are not fungible compliance instruments that they will have little value and few, if any farmers would accept participate in a program where what they do is not fully recognized. Waxman-Markey will result in the imposition of significant costs on farmers – higher fertilizer costs, higher fuel costs, and likely higher costs for most of their other inputs due to cost pass-through from manufacturers.

If however, the offset provisions are modified similar to those used by CCX, then we believe that most crop farmers in Iowa and in the primary corn, soybean and wheat growing areas could adopt practices that could generate carbon offsets under such protocols However, adoption of the practice may be insufficient to generate carbon offsets if the farmer has to make commitments exceeding 5 years and assume liability for reversals that could occur after the farmer no longer controls the land. As the period of commitment required for participation in an offset program is lengthened, the ability of producers to participate in the program will be lessened. At a carbon price of $10-$20 per ton CO2, we expect 10 – 30 percent of farmers in Iowa to participate in the offset program. If carbon prices increase toward $30 per ton, participation rates could increase towards 50 percent of producers. We believe it will take carbon prices in excess of $50 per ton to stimulate participation by more than 50 percent of producers in carbon offset programs.

Several studies have been conducted regarding the economic consequences for agriculture of a cap and trade system like the Waxman-Markey Bill, although nearly all of the analyses have assumed offset protocols for agriculture similar to those used by CCX, and not "term credits.". Analysis by Texas A&M University[i] found that the representative farms in the Midwest (especially corn-soybeans farms) were more likely to see increased revenues from the sale of carbon credits from activities such as no-till farming, adoption of energy efficiency practices and other offset protocols that are likely to be developed than other parts of the country. But even in the Midwest, most of the gain reported in the analyses comes from the expectation that higher commodity prices will materialize if production is reduced due to higher input costs and shifting of productive farm land to forestry or other non-food or feed uses. We believe there is substantial uncertainty about the expectations for higher commodity prices. Unilateral land idling policies of the United States during the 1980s did not result in higher commodity prices as nearly every acre of foregone production in the U.S. was replaced by increased production in other countries such as Brazil and Argentina. Unilateral adoption of policies in the U.S. that would result in land-use shifting may have similar results where U.S. farm production declines, but world prices do not respond since the "lost" production is produced elsewhere in the world.

An analysis by the University of Tennessee[ii] indicates that revenue from carbon offsets alone will be insufficient to fully compensate for increased input costs, but if increases in crop prices are incorporated into the analysis, major feedgrain, oilseed and grain producers will see net gains, in aggregate, from a carbon cap and trade program. Livestock producers are less likely to

see carbon-related income that offsets increased production costs unless there are significant reductions in livestock production. The Tennessee analysis indicates that a cap & trade program like Waxman-Markey may result in a 13 percent reduction in beef production. Clearly the farmers and ranchers who are being forced out of the business due to economic stress will not garner enough income from a carbon program to compensate them for the increased costs. Survivors may eventually be better off, but that assumes consumers will be willing to pay significantly higher prices for meat, milk and other livestock products. Currently, there is no evidence that that is the case.

Participation in carbon offset programs by producers of peanuts, potatoes, cotton, rice, and many other vegetable crops, as well as livestock producers, will be less likely to generate sufficient carbon offset income or increased crop revenues to overcome the increased production costs that they are likely to face.

2) The EPA analysis of the House-passed Waxman-Markey Bill showed that the vast majority of domestic offsets would go toward planting trees and forest management and only a small fraction would go toward agriculture. Can you discuss some of the obstacles to agriculture becoming a major source of offsets and if there are ways to overcome them?

Two primary obstacles for agriculture becoming a major source of offsets are the length of contracts that would be required and the potential for liability for reversals after the end of a carbon contract. In Iowa and Illinois, more than 60 percent of crop land is farmed on one-year renewable leases. The non-continuous nature of such leases create a significant obstacle for farm operators who lease land to participate in carbon offset programs that are likely to require multi-year contracts (some suggesting contract lengths of 5 to 10 years for soil sequestration). The second major obstacle is potential liability for reversals that might occur after a farmer no longer controls the land on which the qualifying practice was undertaken. If this liability is open-ended or deemed to be excessive, then there is likely to be less participation by farmers who rent land in the carbon offset program. EPA has expressed concern that offsets from biological sequestration may not be permanent and thus may not meet the standards that the administrator of the carbon offset program might impose. Given these obstacles, it can be understood why EPA analysis showed that the vast majority of offsets would come from afforestation as trees are planted on existing pasture lands and crop lands and that very few offsets would come from production agriculture involved in row-crop production.

Imposition of "term offset" status on credits from agriculture would be a significant obstacle to agriculture becoming a major source of offsets since the likely value of such offsets would be highly discounted in the marketplace and would create little incentive for farmers to participate. Agriculture has great potential to provide carbon credits if the policy is written in a way that is compatible with the operation of commercial farms. But that potential could go unfulfilled if the policy fails to recognize the unique attributes of agriculture and relies on unattainable absolutes.

3) Of the sources of ag offsets, one of the most frequently mentioned is shifting to no-till, but the EPA analysis admits that "agricultural soil sequestration does not show significant

supply." Another option is reducing fertilizer use, but the EPA model showed what any farmer could tell you that this results in a decline in yields. Another often discussed offset possibility would be for farmers to install an anaerobic digester, but those can cost hundreds of thousands of dollars and a federal AgSTAR program report found that anaerobic digesters are feasible for only what amounts to about 1 percent of Iowa farms. How would a typical farmer in Iowa be able to receive any significant benefit from selling carbon offsets?

USDA analysis indicates that soil sequestration on agricultural land has the potential to remove and sequester between 10 to 15 percent of all U.S. carbon emissions. If the rules for carbon offsets require strict permanence, rather than recognizing that soil sequestration, while less than eternal, may have significant duration, then there will be little opportunity for farmers to realize income from offsets. However, if the rules of offsets are structured so that the full potential of soil and forestry sequestration is recognized by the program, then farmers could generate significant income from offsets. The soil offset protocol of the CCX should be a guide for development of workable protocols for agricultural soils and forestry.

4) In order for farmers to get paid for sequestering carbon dioxide in the soil, they would have to switch to no-till, but many farmers have already been using no-till for many years where it's possible to do so. Any farmer that was using no-till before the date we establish in law would not be eligible for payments. This could result in two neighboring farmers using no-till where the one who had switched over years ago would not see a dime and the Johnny-come-lately would receive a check for doing the exact same thing that his neighbor had been doing all along. This would surely strike most farmers as fundamentally unfair. What can be done to address the fairness issue?

A couple of points in regards to this questions. First, while a lot of farmers use no-till on soybeans, they may do minimum tillage, rather than no-till, on corn. Our experience would suggest that less than 10 percent of farmers do continuous no-till. Secondly, no-till can sequester carbon for decades. Just because a farmer is already doing no-till, unless they are under a contractual commitment to do continuous no-till for multi-year periods, they could revert to some level of tillage in order to qualify in the future for carbon offsets. We believe that in order to avoid perverse incentives, the legislation should stipulate that for agricultural practices the commencement date of the qualifying practice is the calendar year in which emission sequestration activities are first quantified and verified. Continuation of the no-till activity will prevent the release of carbon that is already sequestered and the recognition of early actions without penalizing the early actor is likely to stimulate even more participation in the emission reduction programs in the future and generate better results for the atmosphere than would otherwise be achieved by denying participation to these early actors.

5) We've heard a lot about opportunities for farmers to sell offsets, but it's not always clear how exactly that would work in practice. Since the farmer would actually be selling on a carbon market and offsets would need to be verified and registered, I imagine the process would be a little different from signing up for a FSA program for instance. Could you

walk me through the process a farmer would undertake to receive payment of an offset through let's say USDA, for sake of discussion?

Assuming for this question that USDA is the carbon offset program operator, a likely process for farmers to participate might be as follows:

1) USDA establishes a protocol (rules) that defines the activity or activities that would qualify for carbon offsets.
2) A farmer would sign a contract to do the practice(s) or activities that qualify.
3) This enrollment process would likely include a designation of the land that is being enrolled, and evidence of ownership of the carbon rights
4) Either the farmer (or an aggregator representing him) would make arrangements for a USDA-approved third-party verifier to verify that the producer has carried out the compliant practice or activity according to the USDA protocol. (It is possible that this verification could be a statistically-valid, random sample of a pool of participants combined with an annual certification document that the producer would file with USDA.
5) USDA would review the certification and verification documents and upon approval, register the offsets in the official registry.
6) The registry operator (which might be USDA) would issue a certificate to the producer indicating the quantity and vintage of the issued offset credits.
7) The farmer would then either directly market the offset certificate to a regulated emitter who needs offsets, or more likely, would contact a broker or aggregator who would put together larger pools of certificates which would be marketed to those needing offsets (likely on an electronic exchange, for market transparency).

The above description is purely speculative though since nearly all of the details regarding how carbon offsets from agricultural processes would be handled under Waxman-Markey are left up to the administrator or the Secretary to develop and define. Our comments reflect a process that would be based to a degree on the processes now employed by the Chicago Climate Exchange and other voluntary markets.

6) While reviewing the panel's testimony, a theme emerged from a few of the statements. This theme is that customers of power costs will increase if OTC contracts are standardized and required to trade on an exchange. However, OTC contracts are so new, only developed in the last 10 years. And carbon OTC contacts are even more recent than that. Can you explain how an OTC carbon market is so critical to keeping costs low, when up until a few years ago, it didn't even exist?

We believe that market transparency is critical to smooth operation of the carbon offset market and that most, if not all, registered offsets should trade on standardized contracts on regulated exchanges. We believe that OTC contracts that are based on (or reference) standardized, exchange contracts would be useful for locking in forward commitments, and to facilitate financing of dedicated, specific projects where the contract specifies actual delivery of the offset rights. We believer that there should be substantial price and quantity reporting requirements for OTC contracts similar to reporting requirements for prices and quantities in agricultural markets.

7) Many of you have stated the need for additional transparency in the new market for carbon allowances and I agree that this will be critical to ensure the soundness and effectiveness of risk management for both investors and producers. Some of the testimony today has focused on the differences in carbon markets versus traditional agricultural and energy markets. Can anyone give me some specific examples of how to make these markets transparent if not in the same way that traditional CFTC markets are required to display transparency?

We support using the traditional CFTC regulatory mechanisms and requirements to assure transparency in the carbon markets as well as requiring price reporting and transparency for OTC carbon markets.

---

[i] AFPC Research Paper 09-2, Economic Implications of the EPA Analysis of the CAP and Trade Provisions of H.R. 2454 for U.S. Representative Farms, **August 2009,** Department of Agricultural Economics, Texas A&M University, College Station, Texas

[ii] Some Estimated Impacts of Climate Change Legislation to the Agricultural Sector, A 25x25 sponsored webinar, Burton English, Daniel De la Torre Ugarte, Chad Hellwindkel, Tris West (ORNL), Kim Jensen, and Christopher Clark, University of Tennessee, Knoxville, TN

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Mr. Timothy Profeta
September 9, 2009

Chairman Tom Harkin

1) You said in your testimony that there is a fundamental trade-off between "Mitigating systemic risk and creating additional cost of posting margin." It seems that a lot of our legislative choices come down to this type of calculation, over-the-counter transactions where businesses don't need to put up a lot of cash to do business and exchanges where they expect you to put up some money to back your bets. But if the regulatory system does not deal effectively with systemic risk, such as that posed by OTC trading, are there not costs to that? I'm referring to the costs of using intermediaries like dealer-banks, or volatility, or economic downturns, or taxpayer-funded bailouts.

There are costs embedded in over-the-counter instruments. Cost comparisons typically compare the cash required to post margin for an exchange trade with the fact that OTC contracts may allow purchasers to pledge physical assets as collateral rather than posting cash margin or perhaps not require any collateral at all. By not requiring cash margin, OTC instruments may allow entities to use their cash flows for other purposes. OTC instruments may have transaction costs embedded in the price of the contracts, however.

Events over the past year make it clear that large markets failures can affect broad sections of the economy. Excessive risk-taking in the credit default swap markets, for example, has resulted in significant costs to society, not only through taxpayer-funded bailouts, but also through restricted credit markets and significant loss of value across securities markets. In terms of a carbon market, the cost of large scale market failures could include undermining the nation's approach to addressing climate change. Congress can take steps to avoid these types of failures in the carbon market by ensuring that market participants properly capitalize financial risks. Reduced leverage, larger capital requirements and prudent margin requirements are all necessary parts of the solution. However, the elimination of regulatory arbitrage is also a key to a stable market, with regulators having sufficient information to evaluate the risks to which market participants are exposed.

As Congress moves forward with climate change legislation, it will have to balance the risks and costs posed by OTC instruments with the flexibility and lower cash requirements that these instruments provide for market participants.

Senator Chuck Grassley

1) While reviewing the panel's testimony, a theme emerged from a few of the statements. This theme is that customers of power costs will increase if OTC contracts are standardized and required to trade on an exchange. However, OTC contracts are so new, only developed in the last 10 years. And carbon OTC contacts are even more recent than that. Can you explain how an OTC carbon market is so critical to keeping costs low, when up until a few years ago, it didn't even exist?

The evolution of the OTC market over the last ten years is highlighted by the increase in "exotic" derivatives. Plain-vanilla OTC derivatives, such as interest-rate swaps, have been around for approximately thirty years.

There are two arguments for how OTC instruments keep costs low. The first argument is that OTC contracts provide entities with the flexibility to determine the most cost effective means of hedging risk. Entities may choose OTC instruments because the instruments are not available on exchanges, such as long-dated contracts, or they need an instrument that is specifically tailored to their business needs. The second argument is that OTC contacts may allow companies to avoid tying up their cash reserves by posting margin. Exchange-traded products require initial margin and variation margin posted on a daily basis in cash (or near cash, such as government securities). A customized OTC contract can have specific parameters written into it that allows changes in the frequency for variation margin to be posted (i.e., not daily). OTC contracts may also allow companies to assign non-cash collateral as initial margin or, in some circumstances, not post collateral at all.

2) Many of you have stated the need for additional transparency in the new market for carbon allowances and I agree that this will be critical to ensure the soundness and effectiveness of risk management for both investors and producers. Some of the testimony today has focused on the differences in carbon markets versus traditional agricultural and energy markets. Can anyone give me some specific examples of how to make these markets transparent if not in the same way that traditional CFTC markets are required to display transparency?

There are different levels of transparency in the current commodities markets regulated by the CFTC, depending on the type of commodity and where the commodity trades. While broader market reforms currently under consideration may increase transparency in commodities markets, these efforts are still underway and it is impossible to predict what the final requirements will be. Because Congress would be creating the carbon market *de novo*, the legislation could ensure that the market regulator has jurisdiction over the entire marketplace and can track all transactions involving carbon allowances or associated derivative instruments, regardless of who is involved in the trade and where the trades occur.

Unlike traditional commodities, emission allowances issued pursuant to federal climate legislation will likely have unique serial numbers, allowing regulators to track ownership of the allowances with the proper reporting requirements. The legislation or implementing regulations could achieve transparency in the derivatives markets by requiring reporting from exchanges,

clearing organizations, trade repositories, and intermediaries such as brokers and dealers. If over-the-counter instruments are allowed in the carbon market, the rules could also require reporting directly to the regulator if the transactions are not cleared or reported to trade repositories.

Senator John Thune

1) Relative to other commodity markets, how large will the carbon market be? Is it possible to establish unique regulations that will result in efficiency and transparency of such a large carbon market within two years?

The Clean Energy Jobs and American Power Act would create a substantial new carbon market but would not be larger than many existing commodity markets. Economic modeling conducted by the U.S. EPA suggests that the price of emission allowances would likely be around $13 per allowance in 2015. Just over five billion allowances would be issued that year, resulting in an allowance market worth approximately $65 billion. As a general rule, commodities trade between 6 and 9 times their underlying value in the futures market. This suggests that the derivatives markets could exceed $390 billion in the early years. In comparison, the value of global crude oil markets traded on the Intercontinental Exchange (ICE) and NYMEX exceeded $17 trillion in 2008. Global futures for cotton and sugar trading on ICE reached $154 billion and $543 billion in 2008, respectively.

It is possible to create an efficient and transparent regulatory system to oversee trading in the carbon market. The major legislative proposals for regulating the carbon market, including the American Clean Energy and Security Act that passed the U.S. House of Representatives in June of this year and the Carbon Market Oversight Act of 2009, introduced by Senators Diane Feinstein and Olympia Snowe, are founded upon the existing CFTC regulatory model. Both bills adopt many aspects of the Commodity Exchange Act and add specific requirements to address the unique aspects of the carbon market, including some best practices from existing securities regulations. The CFTC would build upon its existing expertise rather than creating an entirely new regulatory system.

2) As you stated in your testimony, a cap and trade scheme will create two markets, a cash market that will trade allowances from the current year; and a derivatives market, that will allow the parties to purchase futures, options, and other instruments aimed at creating future rights to allowances. Should both markets be regulated by the CFTC? If so, what are the potential pitfalls of splitting the regulatory responsibility with another agency? If not, what additional resources will the CFTC need to carry out this responsibility within the next couple of years?

The CFTC is well-positioned to regulate both the spot and derivative markets for carbon allowances. The cash and derivative markets will be highly correlated and it would be most efficient to have one regulator with its eyes on the entire carbon market complex, including OTC derivatives. The recent failures in the credit default swaps markets highlight the problems caused by relying on multiple regulators to oversee various aspects of the same market.

Additional pitfalls for splitting regulatory authority include the potential for turf wars and a history of poor cooperation between various government agencies.

Generally, the CFTC will need sufficient resources to oversee the carbon market; the key to good regulation is a well-funded and vigilant regulator. I am not in a position to estimate the additional resources that will be necessary. Chairman Gensler and his staff may be able to provide you with a specific answer.

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Mr. Frank Rehermann
September 9, 2009

Chairman Tom Harkin

I am concerned that global warming's impacts – longer droughts and heat waves, increased pests, and increased disease may well be the biggest threat to farmers' abilities to make a profit.

1) Have you considered the potential drawbacks of inaction? How global warming will directly impact your industry?

The USA Rice Federation does not oppose responsible efforts to curb greenhouse gas emissions or climate change, including approaches such as increased use of renewable energy sources, nuclear energy, conservation, enhanced efficiencies, and other approaches that would not harm the U.S. economy or cost American jobs. We are deeply concerned that the cap and trade bill emanating from the House and similar approaches would be especially harmful to family farm operations like mine. The pending cap and trade proposal would substantially increase production costs and lower net income, threatening the economic viability of the farm. Meanwhile, I have little confidence that our trading partners will bind their farms and industry to equally rigorous emission reduction requirements, if any at all.

Senator Pat Roberts

1) You mention the AFPC study by Texas A&M. The representative rice farms experience lower average annual net cash income and at the same time an increase in annual costs. How does this study affect a producer's relationship with his or her lender? Credit is certainly tight already. Do you expect it to become even tighter if cap and trade legislation were to pass? How does this affect beginning farmers and ranchers?

The impact of pending cap and trade legislation ranges from even tighter margins for some to negative cash flow for others. The effect is to erode a producer's equity position, something lenders look unfavorably on when making lending decisions. For producers in the latter end of the range and especially for small and beginning farmers, the impact of cap and trade legislation could prove decisive in a lender's decision, while producers in the former range are on the bubble. This is why, in our testimony, we urge Congress to authorize the Commodity Credit Corporation to cover any increased production costs.

2) If H.R. 2454 were to become law, how would a rice farmer overcome the higher input costs? Would one 'good' year be enough to cover current costs plus addition direct and indirect costs associated with climate change?

We are concerned that some producers simply would not be able to overcome the higher costs and our concern is predicated on a normal or good production year as yield fluctuation from year to year is not as great as it is with respect to many other crops. Production costs and price are principle determinants on how a rice producer fares in a given crop year and the first factor is going to be greatly influenced by this legislation. Note that this is only the production side of the equation. Unlike most other commodities, rice must ordinarily be processed (i.e. milled) before it can be widely marketed in commerce, meaning there will also be increased costs borne by the producer in putting the commodity in the form necessary to market the crop. In fact, generally, rice farmers participating in cooperatives can expect to face a whole other hit in the form of lower patronage refunds, or dividends, on account of the cooperative's increased cost of doing business. And, all of this is predicated on the uncapped treatment of the agricultural sector precluding EPA-imposed performance standards or other prescriptions that the Agency could still impose under other provisions of the bill or the underlying Clean Air Act. There is no effective exemption for production agriculture and necessary processing is not even covered under the definition of agriculture sector. If cap and trade is to go forward, at minimum, there needs to be a clear exemption for agriculture production, including necessary processing.

Senator Chuck Grassley

1) I agree with your testimony that farmers can expect to see the cost of fertilizer, fuel, machinery and other inputs to increase under a cap and trade system. I believe this could make our farmers less competitive in a world economy. What types of actions on your farm do you anticipate taking to help offset these increased costs?

Senator, as a farmer, you can appreciate that if there is a clear and responsible way to cut production costs, a farmer will do it. Few stones have been left unturned in this respect. You also know that we are price takers, so we cannot increase the price on the market. One way to offset increased costs associated with cap and trade is through the sequestration or reduction of carbon. However, as I noted in my written and verbal testimony, today that is not an economically viable and proven option for rice farmers. The only choice we are left with is to absorb the increased costs and hope to still make ends meet.

2) The EPA analysis of the House-passed Waxman-Markey Bill showed that the vast majority of domestic offsets would go toward planting trees and forest management and only a small fraction would go toward agriculture. Can you discuss some of the obstacles to agriculture becoming a major source of offsets and if there are ways to overcome them?

In rice, we see no economically viable opportunity at present to avail ourselves of the offset program being discussed. We are working to develop some possibilities but we are simply not there yet. The primary objection to the forestation option is that farmers and ranchers are not foresters. Beyond that, even if we were to attempt to go that route, it would seem to me that it would involve an enormous upfront investment without the possibility for any real pay off till years down the road when the trees mature. This is a possibility for large pulp and paper companies but not to farm and ranch families.

3) Farmers' livelihoods depend on their competitiveness in a world economy. While the U.S. remains a strong player in agricultural trade, I believe that moving unilaterally on a climate change bill, without an international agreement; will put all U.S. industries at a competitive disadvantage. Right now, we have no guarantees that farmer's offsets will exceed the indirect costs they will undoubtedly have to shoulder. Please describe what you foresee as the international economic consequences our producers would encounter if a cap and trade system is put into place in the United States, but not elsewhere in the world.

Senator, we appreciate your leadership in rejecting what was on the table in the Doha Round negotiations late last year because the agreement meant deep and, in our estimation, unsustainable cuts to U.S. domestic support in exchange for what amounts to illusory concessions from our trading partners. We have no doubt that a similar tact is being taken with respect to global climate change and the curbing of greenhouse gas emissions, as evidenced by recent media reports of comments made by Indian officials. The combination of Doha Round and climate change legislation could very well result in the kind of severe hemorrhaging of American agriculture and the jobs that go with it that we experienced in the manufacturing sector earlier this decade. So, we appreciate the tough stance that you, Chairwoman Lincoln, Ranking Member Chambliss, and others have taken in both regards.

Senator John Thune

1) In the early years of a cap and trade system, what types of offset practices do you think will be used first? Planting trees? Conservation tillage?

As noted in our response to earlier questions, we are unaware of any proven viable opportunities for rice producers to generate and market offsets in the near future.

In a world of 6.7 billion hungry people, the great majority of whom do not have the means or disposable incomes that we Americans do, we strongly reject the notion that there is greater societal or global benefit to planting trees on our rice-fields than farming them. Ours are some of the most productive acres in the world, and we would rather continue to pursue the more noble purpose of feeding the world as long as we can stay in business.

2) As many of you know, agriculture or domestic offsets are capped under the House-passed cap and trade bill. Should these offsets be capped under a truly market-based system? Why or why not? Should international offsets be capped?

Although rice is unable to participate in the agricultural offset program, we believe that U.S. agricultural offset opportunities should not be capped. With respect to international offsets, among other things, it would seem that there would be enforcement issues that could undermine the integrity of the program, so the larger the international program the greater the uncertainty may be relative to the program's effectiveness. However, since

rice farmers are not able to effectively participate in the offset program, we have not closely examined the implications of capping international offsets. We believe the program should be structured such as to increase demand for U.S. offsets and therefore increase the value of such offsets, rather than disadvantage U.S. offsets relative to those in the international market.

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Ms. Julie Winkler
September 9, 2009

Chairman Tom Harkin

1) One of the more frequent complaints we hear about central counterparty clearing is that the costs associated with clearing are too expensive and that it would tie up capital that could be better invested. Could CME Clearport accept illiquid assets such as real estate or stocks and count that towards margin or capital requirements? Could you net cash and futures positions in a market where the cash and futures transactions are executed on the same platform? What other options are there to mitigate cost concerns of margin and capital requirements without compromising the integrity of the clearinghouse?

ANSWER: *Collateral that is readily convertible to cash is an essential element of the safety of a central counterparty clearing system and the only means to avoid the creation of systemic risk. The central counterparty (CCP) must hold sufficient liquid collateral to enable it to immediately meet the obligations of a clearing member—customer which defaults, since the CCP must immediately fulfill the obligations of the defaulting clearing member to each counterparty. There is no way to do this, without adding debt to the system, if the clearing house is holding illiquid assets, such as real estate, as collateral. The Green Exchange Venture currently uses CME Clearing as its CCP. CME Clearing has never experienced a default in its 110 year-plus history. CME Clearing does accept readily marketable securities, but discounts their value in a manner appropriate to recognize any likely illiquidity at the time that they must be sold to cover a loss.*

CCP's are not in the business of lending to customers. That would simply magnify the risk of operating a CCP and defeat the purpose of centralized clearing. If a customer with real estate assets needs to collateralize a cleared position, she may secure a loan from a bank and use the proceeds of the loan to purchase interest bearing securities, which may be used to collateralize her obligations to the CCP.

It is possible, in certain circumstances, to use a physical allowance to collateralize a derivative position. For example, a trader who is short an allowance futures contract may be able to collateralize his position, in whole or in part, with allowances of similar maturity.

2) If legislation establishing greenhouse gas emission allowances and offsets, required that all trading of the allowances, offsets and their derivatives take place on regulated exchanges, and if there is sufficient market interest for allowances 5, 10 or even 20 years in the future, would an exchange be able to offer futures contracts of longer duration? What are the practical considerations that would affect the decision to develop longer-term contracts?

ANSWER: *Some futures contracts are long-dated and have adequate liquidity. For example, NYMEX's Natural Gas futures contract extends out 12 years and CME's Eurodollar futures contract extends out 10 years. However, exchange traded derivative contracts of these durations are the exception, not the rule. Price integrity is the critical component to offering long-dated futures contracts as the clearinghouse must be able to determine adequate performance bond coverage for the contracts and protect against default. Each contract month listed in a long-dated futures contract that has open interest will require a daily settlement process to employ the daily mark-to-market functions of the CCP. If legislation created a cap-and trade program in which allowances were used for compliance over 5, 10, or 20 year periods then long-dated emissions contracts could be designed and offered by exchanges such as the Green Exchange Venture.*

However, there could be challenges in generating sufficient liquidity for the long-dated instruments on an exchange. Cap-and-trade participants may be focused on shorter-term compliance obligations involving near-term compliance deadlines that can be satisfied using actual allowances and offset credits that are in their possession or in circulation. The cap-and-trade program could address this by ensuring that there are longer-term vintages of allowances distributed and in circulation. This would provide market participants with a greater certainty about the physical supply of allowances in future years. This may result in greater hedging interest and trading activity in 5, 10 or 20 year carbon futures contracts. Without such certainty of the physical supply of allowances in future years, it is unlikely that adequate liquidity will exist for long-dated exchange-traded contracts.

3) I see you are opposed to a transaction fee, such as we've seen in the House-passed climate change legislation. If we were to propose a user fee on these transactions to fund regulatory agencies, what would be the best way to structure it – for example, per exchange member, per transaction, per month, per year?

ANSWER: *Funding for market oversight should be generated from more appropriate sources. Most cap-and-trade legislative proposals contemplate an auction for some portion of the allowances. For example, it would take less than one percent of the expected revenues from the auction proposed in the House's American Clean Energy Security Act to fund CFTC's current budget. By tying the funding of oversight resources to allowance auction revenues rather than exchange transactions, all relevant agencies (e.g., USDA, CFTC, EPA) will have resources for all of the elements that are necessary for effective emissions market oversight.*

Exchange users pay trading fees which are used to fund exchange operations and the exchange's self regulatory oversight to ensure and compliance with statutory and regulatory requirements. Any additional user fee, based on transactions or targeted at only members of exchanges, will add transaction costs and make less or unregulated trading venues more attractive compared to regulated exchanges. This will impair liquidity and defeat efforts to encourage transparent, regulated trading markets.

Senator Chuck Grassley

1) While reviewing the panel's testimony, a theme emerged from a few of the statements. This theme is that customers of power costs will increase if OTC contracts are standardized and required to trade on an exchange. However, OTC contracts are so new, only developed in the last 10 years. And carbon OTC contacts are even more recent than that. Can you explain how an OTC carbon market is so critical to keeping costs low, when up until a few years ago, it didn't even exist?

ANSWER: *First, there seems to be a mistaken impression regarding the length of the existence of OTC contracts. Such contracts have actually been utilized for more than 20 years in energy commodities. Second, the reason such contracts came into existence is precisely because they provided innovative, lower costs ways to finance investments; indeed, in some cases, they enabled projects to get financed that otherwise could not have gotten financed at all. Furthermore, they will be the most vital in the early days of any new industry or new industry phase, which will clearly be the scenario in place upon passage of emissions control legislation. This is because the sector will essentially be "inventing" itself—that is, ramping up from a state of de minimis investment in demonstration projects to a full scale commitment to transform the entire societal energy infrastructure. No one yet knows how this will most efficiently be accomplished, so there will be no way to accurately standardize the necessary transactions.*

As was stated in my written testimony, the OTC market complements standardized exchange traded products by providing products customized to a regulated entity's emissions and time horizon. Such customization is necessary for successful financing of carbon offset projects, and for structuring long-term hedging transactions that underpin investments in emissions reduction or clean energy technologies. If such OTC contracts are required to efficiently finance such projects, forcing all trading onto exchange-based platforms is likely to increase costs to utility customers.

Exchange cleared transactions require posting of liquid collateral; some entities may be able to secure more flexible terms for collateralizing their obligations in the OTC market. For example, a customer in the OTC market may be allowed to collateralize its obligations on an OTC contract by granting a lien on a physical asset. The ability to collateralize obligations to counterparties by means of liens on physical assets may

benefit power producers or agricultural offset project developers. Lower financing costs for OTC hedging transactions may translate into lower power costs to consumers.

2) Many of you have stated the need for additional transparency in the new market for carbon allowances and I agree that this will be critical to ensure the soundness and effectiveness of risk management for both investors and producers. Some of the testimony today has focused on the differences in carbon markets versus traditional agricultural and energy markets. Can anyone give me some specific examples of how to make these markets transparent if not in the same way that traditional CFTC markets are required to display transparency?

ANSWER: *We believe that greater transparency should be required of the OTC carbon market and that all carbon-related OTC positions should be reported to the CFTC. This reporting combined with the high level of transparency available through the Green Exchange Venture will provide the additional transparency that is needed for oversight of a U.S. carbon market.*

As was stated in my written testimony, CME Group will provide the market and trade surveillance services to the Green Exchange Venture. CME's highly trained regulatory staff will implement audit and compliance programs to monitor existing markets for fraud and manipulation. Green Exchange Venture also has a reliable means to provide transaction data to the CFTC and these are divided into five broad categories: trade data, time and sales, order data, volume and open interest data and reference data. On behalf of the Green Exchange Venture, CME currently reports cleared trade data (pit, electronic, and ex-pit transactions) on a daily basis to the CFTC.

Senate Committee on Agriculture, Nutrition & Forestry
Global Warming Legislation: Agricultural Producer Perspectives and Trading Regulation Under a Cap and Trade System
Questions for the record
Mr. Fred Yoder
September 9, 2009

Chairman Tom Harkin

You've indicated that you think those farmers who have already engaged in practices that reduce greenhouse gas emissions should be rewarded for their early actions.

1) Let's take the example of a corn farmer who started to use no-till practices in 2006. How should those practices over the past few years be treated in global warming legislation? And, does it make a difference whether the farmer sold carbon sequestration credits derived from those practices on the Chicago Climate Exchange?

   By rewarding early actors, we mean allowing them to participate in a carbon market moving forward, regardless of when those practices began --- perhaps through an "avoided abandonment" carbon credit. For instance, if a grower has used continuous no-till since 2006, he or she should not be disqualified from selling future offsets in a cap and trade system. Congress should avoid establishing policies that encourage growers to till up land for the sole purpose of qualifying for a carbon market. This does not mean receiving compensation for past sequestration. An individual should only be paid for the future offsets that occur as a result of these ongoing actions and not for offsets that occurred in the past. At the same time, if growers had previously participated in CCX or other trading regimes, they would be bound by the existing contract specifications until maturity.

Senator Pat Roberts

In your testimony, you mention "economic analyses have indicated that a robust offset program will significantly reduce the costs of a cap and trade program." Since analysis shows both significant agriculture production cost increases and increased commodity prices due to a reduction in farm land acreage even with an offset program, won't consumers still feel the effects of these higher costs and prices?

To clarify the testimony, a robust offset market will significantly reduce the costs of cap and trade program to American farmers by providing additional revenue, and it would also reduce the impact of the program for the overall economy by providing a low cost mechanism for utility companies and the larger capped sector to meet their emissions targets. At the same time, our analysis indicates that all farmers and corn producers in particular, will face higher costs of production from increased energy costs. In addition to the direct energy costs is the indirect impact of higher fertilizer prices. Agriculture is unique in that farmers are "price takers" and will have very limited ability to pass these

cost increases on to consumers. Several other analyses have indicated that there is a risk of acreage diversions within an offsets program if it is not structured properly. Higher sequestration rates associated with afforestation or planting of perennial grasses could lead to higher payments for these offsets thereby diverting crop ground and pasture out of active production. These acreage shifts would reduce agricultural production, increasing prices for commodity purchasers and ultimately be passed on to consumers as higher food prices. Congress and USDA should provide a robust set of offset projects that virtually all producers could find some way to participate on working farmland. It is a mistake to focus all of our research and protocol development on tillage practices when other valuable project types could be incorporated for row crop agriculture. Policy choices and baseline assumptions in an offsets market will determine how much incentive exists for cropland and rangeland to be planted in trees. Dramatically increasing crop yield trends may also mitigate conversion except for on marginal acres.

Senator Chuck Grassley

I agree with your testimony that farmers can expect to see the cost of fertilizer, fuel, machinery and other inputs to increase under a cap and trade system. I believe this could make our farmers less competitive in a world economy. What types of actions on your farm do you anticipate taking to help offset these increased costs?

I believe if we are going to go down this road of offsets, it is essential to look at current production methods and examine ways we can reduce costs if the agriculture industry is going to continue to thrive. In looking at typical greenhouse gases such as carbon dioxide, methane (28 times more potent than CO2), and nitrous oxide (300 times more potent than CO2), it seems to me we need to be looking at how we can reduce nitrous oxide emissions and create an offset credit for doing this. Agronomists tell us we lose at least 30% of all nitrogen applied to soils for growing corn. When we realize that preventing just half of those losses would equate to the equivalent of the mitigation of 7 tons of CO2 per acre, surely we can develop a science-based and verifiable protocol to establish the creation of an offset credit for virtually all corn producers across the country to participate in. The other concern about our farmers being competitive in a world economy is right on. Unless the rest of the world's agricultural producers are required to follow similar rules for producing feed, food, fuel, and fiber, we will be put in an enormously unfair position of competing. That is why the international process is so critical. We must continue to work with other agriculture groups around the world to garner their acceptance and participation in climate mitigation.

You mention that treatment of early actors, especially those who have adopted conservation tillage practices prior to 2001, should not be penalized in the carbon offset program developed. Do you have recommendations on how to address this issue, in particular for the earliest adaptors as you have highlighted?

The fact of the matter is that each and every crop grown sequesters new carbon. By penalizing the early adaptors of conservation tillage practices, it will encourage

significant reversal of those systems that have not only sequestered considerable carbon but also saved countless tons of topsoil and nutrient runoff. This is basically a policy decision which can easily be addressed by including an offset credit for "avoided abandonment" as mentioned in the Stabenow-Baucus language. This would effectively grandfather all early adopters for tillage practices without a cutoff date.

EPA numbers suggest very high cost increases to use coal. Since the Corn Belt primarily uses coal to provide our energy needs, do you believe that fuel switching will occur? To which types of fuels? What does this mean for our rural communities?

It's undeniable that the cap on existing coal-fire power plants will raise electricity rates for consumers. Research is underway to determine the feasibility of switching fuels at these plants, to include the possibility of including biomass. However, this goes beyond the simple economics of the cost of retrofitting the plant, farm level collection and processing, and transport to the plant. The use of existing crop residue (corn stover, wheat straw, etc.) has to be held to a sustainable level that does not reduce soil tilth. Likewise the introduction of new energy crops (perennial grasses, forestry) will likely compete for existing crop ground reducing crop production and increasing food prices for consumers. At the same time, it is essential for power plants to have access to a plentiful supply of low cost carbon offsets in order to continue to use coal in the electricity generation process. In fact, the energy sector has included the creation of a robust offsets market as one of their major policy objectives in climate legislation. Agriculture offsets can reduce greenhouse gas emissions while simultaneously mitigating increased energy costs for consumers.

The EPA analysis of the House-passed Waxman-Markey Bill showed that the vast majority of domestic offsets would go toward planting trees and forest management and only a small fraction would go toward agriculture. Can you discuss some of the obstacles to agriculture becoming a major source of offsets and if there are ways to overcome them?

First of all, I believe the EPA analysis and the underlying FASOM model to be fundamentally flawed. EPA does not use current yield data for corn and also employs a flawed baseline for soil sequestration. Due to these incorrect assumptions, the FASOM model points to only a minimal opportunity for generating carbon credits on active farmland. It should also be noted that converting land from row crop to forestry requires its own set of investments and infrastructure, so land use decisions will not be based exclusively on the price carbon. Nonetheless, most of the research conducted to date shows that afforestation or perennial grasses sequesters more carbon than most of the proposed agricultural offsets like continuous no-till or increased fertilizer efficiency. For example if afforestation has a SR of 2 MT of CO2 per acre and continuous no-till is 0.6 MT, a landowner would receive 3 1/3 times more payment for planting trees. At the same time, there are costs barriers to entry in the offset market for row crop agriculture. Our analysis shows that farmers experience costs for adopting a new practice like continuous no-till. There will be new equipment to purchase and in many areas there will be a temporary yield drag with no-till. These costs can be spread out over the life of the equipment and research indicates that the yield drag diminishes as farmers overcome the learning curve; however, there are still areas where continuous no-till is not a viable

production option. This is one of the reasons why enabling farmers to stack credits is so critical. It simply allows growers to gain a larger share of the offset payment while keeping land in agricultural production. These producers will still have the opportunity to adopt other offset practices, many of which have a significantly lower SR than continuous no-till. Then it becomes a question of at a lower SR is the offset payment sufficient to cover other entry costs such as verification and validation.

Farmers' livelihoods depend on their competitiveness in a world economy. While the U.S. remains a strong player in agricultural trade, I believe that moving unilaterally on a climate change bill, without an international agreement; will put all U.S. industries at a competitive disadvantage. Right now, we have no guarantees that farmer's offsets will exceed the indirect costs they will undoubtedly have to shoulder. Please describe what you foresee as the international economic consequences our producers would encounter if a cap and trade system is put into place in the United States, but not elsewhere in the world.

Lack of an international agreement, and more importantly a verifiable international agreement would be detrimental for U.S. agriculture. Farmers in other parts of the world could conceivably capture market share if we adopted legislation that puts our producers at a competitive disadvantage. One policy option is an "on-ramp" that delays implementation of climate legislation until other major countries have adopted similar rules.

Senator John Thune

If under a cap and trade system, ag producers are asked to sign a long-term contract, but only receive benefits of carbon sequestration for a few years or until the soil is saturated with carbon, do you think your members are likely to participate?

Both length of contracts and carbon saturation are both key issues that need to be addressed in either legislation or the final rule making process. One issue that cannot be overlooked regarding contract length is the fact that a majority of a farmers ground is actually leased from the land-owner. Although it is not uncommon for the same farmer to farm a piece of ground for many years, it is rarely done on a multi-year contract. In addition, carbon saturation needs additional research. If the saturation time frame is set too low it is foreseeable that land used as offsets will be forced out of the program just as the largest impacts from cost of production increases are being felt. The alternative under this scenario is limited farmer participation in the early years.

In the early years of a cap and trade system, what types of offset practices do you think will be used first? Planting trees? Conservation tillage?

In the early years, no-till and conservation tillage practices will probably be the first to be considered on working farmland. However, in areas where there is continuous corn grown or where soil temperatures are cooler, widespread no-till may not be practical.

That is why it is imperative we continue to investigate methods to reduce nitrous oxide in raising corn, which could generate offset credits regardless of geography or tillage practice. Virtually every producer could participate in reducing the loss of nitrogen, which is estimated at 30%, by adopting new application technologies and using new stabilizers to keep nitrogen in place, and even reduce the amount needed to apply. Seed companies will soon introduce new biotechnology varieties that can utilize nitrogen much more efficiently and thus reduce amounts applied. Other offset practices such as using cover crops, and applying bio-char would also be attractive for farmers to use in offset projects. If policies offer a broad range of offset practice types, we will see greater acceptance from the agriculture sector and a greater willingness to participate.

Do you believe fertilizer prices will increase under a cap and trade system? If so, how high may fertilizer prices increase? Do you believe we will have a greater reliance on foreign sources of fertilizer?

Assuming the fertilizer manufacturers receive sufficient allowances to cover their increased costs, and they pass these cost savings along to growers in lower cost fertilizer there should be minimal impacts in the early years. However, beginning in 2025 and extended through the remainder of our analysis (2035) we expect significant increases in the cost of fertilizer. Our analysis shows if the price of a MT of CO2e is $167.16 in 2035 (EIA), corn growers would see a $35/acre increase in fertilizer costs. Increased reliance on imported fertilizers will largely depend on two factors. First how many allowances will domestic manufacturers receive and what will they do with them. Second, how will the U.S. treat imports from countries that do not have similar climate change legislation. The U.S. is currently importing a majority of our Nitrogen fertilizer needs. In 2009, approximately 1/3 of the imports came from Canada, which would be assumed to implement similar legislation. The remaining 2/3 of imports comes largely from countries like Trinidad and Tobago, and the Middle East. As an aside, there may be opportunities for some domestic utility companies to offer new sources of fertilizer as a refined byproduct of coal scrubbing if these practices are incentivized with allowances. Recent discussions with a major electricity provider indicated their willingness to dehydrate their waste water and produce a 20% nitrogen solution that could be sold to local farmers. This could supplement our domestic fertilizer production in the future.

In the later years of the House-passed cap and trade bill, "energy intensive trade exposed" industries including the fertilizer industry, no long receive free allowances. What impact will that have on the fertilizer industry and the price of fertilizer? If most early acres of conservation tillage are saturated with carbon at this point, what impact will these two scenarios have on the cost-benefit analysis for feed grain farmers in the Midwest?

Our analysis shows that all farmers will experience cost of production increases (fuel, electricity, natural gas/propane, fertilizer). These cost increases will begin as soon as cap and trade legislation is implemented and grow over time. Our study includes the assumption that the fertilizer allowances will moderate these cost increases until they phase out beginning in 2025. The full impact of fertilizer increases will come into effect starting around 2032 and continue into the future. These factors point to the need for a robust offsets and allowance pool that is beneficial to agriculture. It's important to

emphasize that the program must be broader than just credits for no-till. Our analysis looked primarily at continuous no-till and determined that the ability of farmers to adopt this tillage practice is not universal. Farmers in certain areas particularly northern portions of the Cornbelt, will have lower adoption rates than other growers. Protocols for other sequestration practice types should be developed by USDA to offer opportunities to all growers regardless of geography. Our analysis did not include assumptions concerning carbon saturation, but according to research from Dr. Ratan Lal of the Ohio State University, there is good reason to question some of the published data on saturation levels. His studies indicate soils can hold considerably more carbon than previously indicated. He has seen examples of continuous no-till for many consecutive years where sequestration is still taking place.

How should Congress treat the early actors of conservation practices? For example, South Dakota already had 2.8 million acres in no-till, which would not receive credit under the House-passed climate change bill since these acres were in no-till before 2001. Should these producers be able to participate in the carbon market? If so, how should these acres be treated?

The fact of the matter is that each and every crop grown sequesters new carbon. By penalizing the early adaptors of conservation tillage practices, it will encourage significant reversal of those systems that have not only sequestered considerable carbon but also saved countless tons of topsoil and nutrient runoff. This is basically a policy decision which can easily be addressed by including an offset credit for "avoided abandonment" as mentioned in the Stabenow-Baucus language. This would effectively grandfather all early adopters for conservation tillage practices without a cutoff date. At the same time, these growers would presumably still be able to participate in other offset practices in addition to no-till and stack these credits (fertilizer efficiency, irrigation efficiency, elimination of fallow, etc.).

As many of you know, agriculture or domestic offsets are capped under the House-passed cap and trade bill. Should these offsets be capped under a truly market-based system? Why or why not? Should international offsets be capped?

By artificially limiting participation or access to develop credits, the effectiveness and efficiencies of an open-market product will be skewed. If offsets are capped too low the price will be artificially high and will drive up energy costs for all consumers. However, under HR 2454 there is a robust domestic offsets pool with a cap of 1 billion tons as well as an international cap of 1 billion tons. There would be considerable difficulty to produce more than we would be allowed under this scenario. In fact, the industry would need access to those international credits to keep the markets competitive and to reduce the costs of the cap-and-trade program for the overall economy. The larger concern with international offsets is not capping their levels, but verification. There must be an international method to verify that the purchased offsets abroad are truly sequestering carbon. Without these assurances, offset prices will fall depriving U.S. producers of a fair market return and possibly giving our global agriculture competitors and unfair advantage.