

RENEWABLE FUELS FOR ENERGY SECURITY

HEARING
BEFORE THE
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
ONE HUNDRED SEVENTH CONGRESS
FIRST SESSION

ON

S. 1006

TO PROVIDE FOR THE ENERGY SECURITY OF THE UNITED STATES AND
PROMOTE ENVIRONMENTAL QUALITY BY ENHANCING THE USE OF
MOTOR VEHICLE FUELS FROM RENEWABLE SOURCES, AND FOR
OTHER PURPOSES

JULY 6, 2001



Printed for the use of the
Committee on Energy and Natural Resources

U.S. GOVERNMENT PRINTING OFFICE

76-380 PDF

WASHINGTON : 2001

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) 512-2250 Mail: Stop SSOP, Washington, DC 20402-0001

COMMITTEE ON ENERGY AND NATURAL RESOURCES

JEFF BINGAMAN, *New Mexico, Chairman*

DANIEL K. AKAKA, Hawaii	FRANK H. MURKOWSKI, Alaska
BYRON L. DORGAN, North Dakota	PETE V. DOMENICI, New Mexico
BOB GRAHAM, Florida	DON NICKLES, Oklahoma
RON WYDEN, Oregon	LARRY E. CRAIG, Idaho
TIM JOHNSON, South Dakota	BEN NIGHTHORSE CAMPBELL, Colorado
MARY L. LANDRIEU, Louisiana	CRAIG THOMAS, Wyoming
EVAN BAYH, Indiana	GORDON SMITH, Oregon
BLANCHE L. LINCOLN, Arkansas	JIM BUNNING, Kentucky
	PETER G. FITZGERALD, Illinois
	CONRAD BURNS, Montana

ROBERT M. SIMON, *Staff Director*
SAM E. FOWLER, *Chief Counsel*
BRIAN P. MALNAK, *Republican Staff Director*
JAMES P. BEIRNE, *Republican Chief Counsel*
SHIRLEY NEFF, *Staff Economist*
BRYAN HANNEGAN, *Staff Scientist*

Note: Senator Bingaman assumed the Chairmanship on June 6, 2001.

CONTENTS

STATEMENTS

	Page
Alverson, Ron, Chairman, Lake Area Corn Processors	26
Campbell, John B., Vice President, AG Processing Inc.	30
Christianson, Rodney, Chief Executive Officer, South Dakota Soybean Processors and Minnesota Soybean Processors	22
Guthmiller, Trevor T., Executive Director, American Coalition for Ethanol	18
Ihnen, Darin, Vice President, South Dakota Corn Growers Association and President of the Board, Great Plains Ethanol, LLC	5
Johnson, Hon. Tim, U.S. Senator from South Dakota	1
Metz, Robert, South Dakota Soybean Association and Board Member, National Biodiesel Board	8
Schaunaman, Kirk, South Dakota Farmers Union	12
Shubeck, Paul, on behalf of the South Dakota Farm Bureau	14
Twiss, John, Supervisor, Black Hills National Forest, Forest Service, Department of Agriculture	28

APPENDIX

Additional material submitted for the record	43
--	----

RENEWABLE FUELS FOR ENERGY SECURITY

FRIDAY, JULY 6, 2001

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Sioux Falls, SD.

The committee met, pursuant to notice, at 9:30 a.m. in the County Commission Meeting Room, Minnehaha County Administration Building, 415 North Dakota Avenue, Hon. Tim Johnson presiding.

OPENING STATEMENT OF HON. TIM JOHNSON, U.S. SENATOR FROM SOUTH DAKOTA

Senator JOHNSON. Will the first panel for the Energy Committee hearing please come up and be seated. The first panel is Darin Ihnen, Corn Growers; Bob Metz, South Dakota Soybean Association; Kirk Schaunaman, South Dakota Farmers Union; and Paul Shubeck, South Dakota Farm Bureau. Can you come on up and join us.

This is an official hearing for the Senate Energy and Natural Resources Committee and copies of all written testimony will be posted on the Energy Committee website. All testimony will be taken back to Washington with us and be examined by committee staff and other members of the Senate Energy Committee. Anyone who would like to submit statements for the record later on, who are not part of one of the panels, you're certainly welcome to do so. We will incorporate your statements as part of the committee record as well.

We also hope to have some time at the conclusion of our hearing today where anybody who would like to make an oral observation, comment, or question for any of us here would have that opportunity as well.

With me today from the Energy Committee are David Toomey, who handles my energy issues in Washington D.C., and Shirley Neff, who is the staff economist of the Senate Energy Committee hearing. Both of these individuals also will be available for anyone who would like to talk a little bit about what's going on on the Energy Committee's agenda, any ideas that you have that you would like to follow up with me and with staff.

I want to thank everybody for coming today and I realize everybody has a busy schedule, but this is the first field hearing of the Senate Energy and Natural Resources Committee of the 107th Congress. So I'm pleased that here in South Dakota we're holding the very first of these field hearings.

As you all know, there's been a great deal of discussion in recent months about our Nation's energy situation, the increasing vola-

tility in gasoline and diesel prices which has affected us in rural American in particular, but which has a great consequence for our entire economy across the Nation.

We've been discussing the tightness in the oil refining capacity as a major factor. The reemergence of OPEC as a force in the world oil markets has also been a factor. These in combination with natural gas prices this past winter and recent electricity problems in California and the West, have caused Congress to refocus with some urgency on a national energy strategy for our country.

Frankly, I don't believe that either political party's administrations or members of Congress has done an adequate job of focusing on the long term of what needs to be done on energy. These problems have gone back, at least in recent memory, all the way to the Carter administration with the oil shortages that we had, and the long gas lines at that time. And sometimes Congress's attention has waned as prices have gone down and then has increased as prices have gone up, and it should be apparent to all that we need now to address these issues with some urgency and we need to do it in a bipartisan fashion.

This is the second of several hearings that the Energy Committee will be holding relative to fuels in the transportation sectors. The first of the field hearings, but it's the second of the hearings that have been held relative to transportation. On July 17 we will be having a follow-up hearing on the demand for oil products in the light duty vehicle sector. As a member of the Energy Committee I expect to spend the next several months working with Chairman Bingaman and other members of the committee to develop an energy strategy to mitigate the boom and bust cycles that we have in the energy markets.

We plan to begin a mark-up of energy legislation on July 25, after holding a series of hearings. We expect that that mark up will continue on through the first several days of August and following this first field hearing we'll be holding additional hearings on conventional fuels, building and appliance efficiency, energy research and development, and global climate change.

This past month, I introduced a bill with my friend Senator Chuck Hagel, Republican of Nebraska, entitled, The Renewable Fuels for Energy Security Act of 2001, S. 1006. The goal of this legislation is to ensure future growth for ethanol and biodiesel through the creation of a new renewable fuels content standard in all motor fuel produced and used in the United States. With the help of a great many organizations represented here today, including South Dakota Corn Growers, the Lake Area Corn Processors, the American Coalition for Ethanol, South Dakota Soybean Association, South Dakota Farmers Union and Farm Bureau, we have been able to put together what I think is a very constructive effort. Senator Hagel and I will be pushing for legislation to establish an aggressive growth pattern for ethanol and biodiesel production and use in the United States.

Today, ethanol comprises less than one percent of all transportation fuel in the United States. Our legislation would require all motor fuel sold in the United States to be comprised of a certain quantity of renewable fuels. We think ethanol from corn, ethanol

from biomass and biodiesel based on soybean would be a key component of that renewable fuel strategy.

By 2008, our legislation calls for ramping up to two percent of all transportation fuel in the United States, and by 2016 increasing to 5 percent. We believe that these are realistic targets, but obviously they are arbitrary in nature and we want to work with the industry, and this may be a project in progress, but I think we need at the outset to start with ambitious goals to utilize ethanol and biodiesel, recognizing at the same time that we may have some extraordinary opportunities not just in terms of fuel, but also in terms of oxygenate clean air requirements in the State of California and elsewhere.

I'm pleased that the Bush administration recently affirmed its support for ethanol when it denied California's request to evade the oxygen requirement for reformulated gasoline as required under the Clean Air Act. Without the dangers of groundwater contamination posed by MTBE, I believe that ETBE could play a key role in our clean air strategies in this country. We're certainly not all the way there yet, but if we work to use ETBE rather than MTBE, in the State of California alone this would be a 600 million gallon a year requirement.

To put that in some perspective, our three plants in South Dakota, as proud as we are of them, produce around 30 million gallons a year. Now we don't anticipate that South Dakota is going to produce all of California's ethanol, but we do believe that nationally there is a potential at least for a robust ramping up of the demands for ethanol, both through fuel use and through an oxygenate use in the country.

We have several plants in South Dakota now being planned. I was recently at the groundbreaking for a new plant in Milbank, and obviously we have an opening soon near Wentworth. These farmer-owned ethanol plants in South Dakota and in our neighboring States, I think, demonstrate a lot of confidence with where we're going and offer the hope that we will, in fact, have an increasingly diversified economy in our State whereby farmers in our State will have additional streams of revenue both through higher grain prices in their localities where these plants exist, through added jobs in the localities and through their stock ownership in their cooperatives, have an opportunity to gain income from the value-added product in the end.

Based on current projections, construction of new plants will generate \$900 million in capital investment and thousands of construction jobs in rural communities. Today we have our three ethanol plants in South Dakota, Scotland, Aberdeen and Huron and, again, those plants produce about 30 million gallons. I think an important, but sometimes less mentioned component of this overall strategy is biodiesel fuels.

As we know, unfortunately, the soybean prices are hovering near historic lows, but biodiesel production is a small but growing steadily part of our energy strategy in this country. With new EPA rules requiring dramatically lower amounts of sulfur in diesel fuel by 2007, the market prospects for biodiesel, an intrinsically low sulfur fuel, I believe, are very bright.

In order to ensure the future for clean renewable fuels we also have to continue research and development to bring down production costs. I was disappointed with the proposed cuts in the renewable energy budget, but as a member of the Senate Appropriations Committee and a member of the Energy Committee, it's my hope that we can find ways to bring together a joining of the minds across party lines and, in fact, make the kinds of key investments that need to be made in order for these alternative agriculturally based fuels to gain the foothold that they need to have.

The Senate plans to proceed with a comprehensive energy legislation later on this summer. We know that as you may have noted in the press today, that some of the tax components of energy strategy are in some doubt. As we speak, the expansion for tax credits for alternative energy using sun, wind, and farm waste, and for the purchase of fuel efficient hybrid cars using electricity and gas as noted by the media this morning, may be in some doubt simply because the January CBO projections showed a \$96 billion budget surplus, excluding Social Security and Medicare for the coming year.

Now the economic slow down in combination with the tax cut package that has already passed, we now look at 2001 budget surplus closer to a \$16 billion level rather than \$96 billion with the administration currently proposing an \$18.4 billion added increase in defense spending and an education bill that remains pending as well, which would involve a significant additional expenditure level.

And so we're going through a debate that will be beginning very soon in Congress about whether some modifications in the recently enacted tax package will have to be made or whether there are spending reductions or other combinations of things that can be done to accommodate a tax—a greater tax incentive than currently exists to boost the development and use of ethanol fuels, but our friends in the Finance Committee on the Senate side, Ways and Means in the House, of course, are dealing with this and we want to work as closely as we can with President Bush as well to see what we can do to find a comprehensive approach that makes sense in terms of tax incentives as well as other public policy options that we have to promote the use of these fuels.

So with that, I'm pleased that we can begin with this hearing and to have the quality panels that we have before us. I thought what we ought to do is begin with panel one, go then to panel two, and then put questions to the panels, so we make sure that everybody has the time to give their testimony and then we hopefully will have some time for anybody else who would like to participate in today's hearing and, again, that record will be taken back.

In order to run this in an orderly fashion and to make sure that we accommodate as many people as we have here, the committee will use the clock system where we will set it on 5 minutes for each panel member to make your statement or summarize your statement. Your full written statement will be received in the record, but if you could summarize it and keep it within 5 minutes. If the light goes on there's no cane that grabs you off the stage or anything, but we will be trying to impose it with some reasonableness,

in order to make sure that we don't neglect our ability to listen to other people later on in the hearing.

The machinery we have here, I believe, was last used by Everett Dirksen from what I can tell here. This is not rocket engineering up here, but we will attempt to use this equipment during the hearing.

The first witness we have this morning is Darin Ihnen from South Dakota Corn Growers Association. Darin, would you care to join us with your statement, summarize it if you choose.

STATEMENT OF DARIN IHNEN, VICE PRESIDENT, SOUTH DAKOTA CORN GROWERS ASSOCIATION AND PRESIDENT OF THE BOARD, GREAT PLAINS ETHANOL, LLC

Mr. IHNEN. Thank you, Senator Johnson. My name is Darin Ihnen and I am the vice president of the South Dakota Corn Growers Association. I also serve as president of the board of Great Plains Ethanol, LLC, an ethanol plant that will be constructed east of Chancellor, South Dakota. I am here today to provide the views of the South Dakota Corn Growers on S. 1006, the Renewable Fuels and Energy Security Act of 2001. We appreciate this opportunity to provide testimony on the important issue of energy security and rural economic development that are addressed in S. 1006.

South Dakota Corn Growers has been participating in the National Corn Growers Association's Ethanol Task force since it was formed earlier this year. The task force was charged with developing policy options that would at least triple the amount of corn growing for ethanol by 2011. One of the policy options brought forward by the task force was the introduction of a renewable fuels standard in the energy bill now being debated by this committee. We believe S. 1006 meets the goals of the task force recommendation.

You and Senator Hagel have shown great vision by introducing this bill because it makes a serious attempt at addressing the critical issue of our Nation's energy security and our dependence on imported oil and petroleum products. It is particularly meaningful that you've called this hearing during the week in which we celebrate our Nation's Independence Day.

Our forefathers were rebelling against the taxation being imposed from powers across the sea. Now as we enter the 21st century the American people are again being taxed by foreign powers. This tax is in the form of high oil prices that are controlled by a cartel that uses monopoly power to increase prices and restrict supply. It's time for us to declare our energy independence.

Transportation fuels are necessary and essential to a healthy economy. In no small measure, we need adequate supplies of transportation fuels to produce and meet the demand for food and fiber here in the United States and throughout the world. S. 1006 takes a giant leap in assuring that alternatives to petroleum will play a significant role in our transportation fuel market. Your bill recognizes that ethanol and biodiesel produced from grains, oilseeds, biomass, and agricultural and municipal waste can and should be used to transform the transportation fuel market into one that is truly diverse and sets the stage for the future.

South Dakota Corn Growers is currently working with the National Corn Growers to analyze the effects of S. 1006 on ethanol demand and on the farm economy. While our analyses are not complete we do not have—we do have some very good numbers on how S. 1006 affects the demand for ethanol and, in turn, the demand for corn.

The bill is focused on replacing energy used to power highway vehicles with renewable energy. The results of our analysis are presented in table 1 of our testimony.* Our analysis assumes that as S. 1006 takes effect most of the ethanol production will come from corn. However, as time passes, more and more ethanol production will come from alternative feedstocks including other grains and cellulose from trees and grasses. Even so, the amount of corn needed to meet the requirements of the bill grow steadily from about 700 million bushels in 2003 to 1.9 billion bushels in 2011 and almost 2.5 billion bushels in 2016. As you know, Senator Johnson, this is a substantial increase over our current corn baseline and represents a tremendous opportunity for corn farmers.

The ethanol industry in South Dakota is in a growth spurt right now. There is tremendous interest in building ethanol plants right now because of the high gas prices and low prices of corn. Currently, South Dakota ethanol plants have the capacity to produce 30 million gallons of ethanol per year. A fourth plant—of the three existing plants that we have. A fourth plant in Wentworth is projected to become operational in August and will produce an additional 40 million gallons a year. There's over 1,000 producer owners from South Dakota who will use over 15 million bushels of corn.

There are also six other ethanol plants in progress at various stages of development in various parts of the State. In Rosholt, a 15 million gallon plant is under construction that will use 6 million bushels of corn annually. In Milbank, a 40 million gallon ethanol plant is under construction that has over 650 producer owners and will use over 15 million bushels of corn. In Watertown a 40 million gallon ethanol plant is in progress and under construction with over 800 producer owners that will use over 15 million bushels of corn.

In Chancellor, I'm board president there, and that plant we have already raised over \$14 million in the first 2½ weeks of our equity drive, and that is going to be a 40 million gallon plant that will use over 15 million bushels of corn. In Pierre a 15 million gallon plant is in progress that will be integrated with a livestock feedlot and use the ethanol byproduct from the plant.

In total, 150 million gallons of ethanol will be produced from these six plants. When this figure is added to South Dakota's existing ethanol production, 220 million gallons of ethanol will be produced in South Dakota, generating employment, expanding the tax base of these local areas, and giving producers increased corn prices.

In my testimony is a chart of what one 40 million gallon ethanol plant will provide for a local economy. It will produce annually 40 million gallons of ethanol. A market for 14.3 million bushels of corn or roughly 40,000 bushels per day. 33 quality employment positions

*The table has been retained in committee files.

with an annual payroll of \$1.3 million. \$6 million in energy costs. \$55 million in total expense with \$48 million plus in capital and start-up costs. Over 25 years, a plant of this stature will generate 1 billion gallons of clean burning ethanol. A market for 358 million bushels of corn. \$32.5 million annual payroll with a total economic impact of over \$6 billion.

Can American agriculture meet the demands of S. 1006? We believe the answer to that question is a resounding "yes." USDA has projected in their annual commodity baseline a corn crop for the current marketing year in excess of 10 billion bushels. Using current assumptions about corn use, USDA predicts corn production will increase more than 1 billion bushels over the next 10 years. However, the potential for increasing corn production is significant if there is an associated increase in corn demand from activities like additional ethanol production.

The requirements can be analyzed by considering the additional demand for corn that is likely if this becomes law and ethanol production increases. This extra demand will result in price effects that will bring extra inputs into corn production, mostly land, fertilizer, and irrigation, with only small increases in yields because these currently being projected, we can expect the corn crop to increase significantly.

Moreover, the additional demand for corn in ethanol production would likely increase the amount of acres planted to corn. The effect of more planted acres and higher yields can easily result in corn production topping 13 billion bushels by 2011.

In addition, the price effects that are likely to result in additional production are likely to result in slightly lower exports of corn. We believe that the USDA's current baseline overestimates corn exports by several hundred million bushels in 2011. Thus, with increases in production and a small adjustment in export demand, more than 1 billion bushels of corn could be available for ethanol production in 2011. With 750 million bushels of corn for ethanol built into the current USDA baseline, we believe the 1.2 billion additional bushels of corn needed for ethanol production is easily attainable while maintaining our ever slightly increasing projected corn stocks.

We believe this bill will triple the corn-based ethanol production by 2011 and lead to a more than four-fold increase in all grain production by 2016. Aside from the additional amount of resources needed on farms to produce this additional demand, a four-fold increase in grain-based ethanol industry would represent a tremendous opportunity for investment in ethanol production infrastructure in rural America. In terms of ethanol plant and equipment alone, it represents an investment of more than \$10 billion dollars.

However, the economic activity generated by this investment by the additional employment and investment opportunities would be like a Marshall Plan for rural America. Thus, S. 1006 holds the potential to address our dependence on imported oil and holds the promise of economic independence for rural America.

The family farmer is America's original small business. With 75 percent of America's farms earning under \$50,000, producers need to move from price takers to price makers. Considering that on average only about 15 to 20 percent of a typical grocery bill finds its

way back to farmers, it is very important that we find new opportunities for farmers to invest in their futures. Opportunities to capture some of these profits in value-added agriculture are very evident today. Ethanol has been a value-added success story for Midwest agriculture and we believe this bill will not only mean more opportunities for farmers in South Dakota, but also all across the country.

My friends who produce oil seeds will provide their particular perspective on this bill and ethanol producers will also provide their insight. However I would like to take this opportunity to close my testimony by saying that this bill will offer significant opportunities to farmers. We believe that fully half of the ethanol needed to meet the requirements of this bill will come from cellulose. Some of that cellulose will come from agricultural wastes like rice straw in California or sugar bagasse in Florida and Louisiana.

Some of the cellulose will also come from dedicated energy crops like hybrid poplars or switchgrass. All of these feedstocks will be produced by farmers or associated with agriculture production. A major advantage of this bill as a policy instrument is the vision of growing a diverse ethanol industry with a broad-based constituency that will bring agricultural producers from across the Nation together in a common cause.

From the perspective of a farmer and investor in value-added ag enterprise, the potential that is laid before us is beneficial for corn growers and the ethanol industry. That's why South Dakota Corn Growers supports this bill and why we will work for its passage.

Senator JOHNSON. Thank you Darin, excellent statement. Next on our panel is Bob Metz, the South Dakota Soybean Association.

STATEMENT OF ROBERT METZ, SOUTH DAKOTA SOYBEAN ASSOCIATION AND BOARD MEMBER, NATIONAL BIODIESEL BOARD

Mr. METZ. Thank you, Senator Johnson. I am Bob Metz, a soybean, corn and wheat producer representing the South Dakota Soybean Association. I also serve on the board of directors of the American Soybean Association and the National Biodiesel Board.

I appreciate the opportunity to come here today and talk with you regarding the need for a national comprehensive energy policy that includes meaningful renewable fuels, components for biodiesel and ethanol. South Dakota soybean growers appreciate your support and leadership in advancing the use of renewable fuels. You have been a strong supporter of biodiesel for many years and we thank you for your commitment to development of a viable biodiesel industry.

These are times when prices for our commodities are at record lows and energy and other inputs are at record highs. This causes great concern across the countryside and producers are reviewing both options for reducing inputs and also the opportunity to increase prices of what we grow.

While in the short term there's little we can do to completely alleviate this situation, the American Soybean Association believes that the development of a comprehensive national energy plan would avoid this crisis situation in the future. We also feel strongly that a national energy plan should include a renewable fuels com-

ponent that includes both biodiesel and ethanol and that is why we strongly support the renewable energy legislation you and Senator Hagel introduced last month, S. 1006.

We believe this legislation provides achievable goals for both biodiesel and ethanol, while helping to decrease our dependency on imported petroleum. As I understand the bill, it requires a small percentage of renewable fuels, biodiesel and ethanol, to be incorporated into motor fuels. We believe that this is a program that is flexible and user friendly. We commend you and Senator Hagel for this bold and innovative step in moving our country toward home-grown energy sources.

As you know, Mr. Chairman, for the last 8 to 10 years the U.S. soybean growers have invested their research and development and commercialization money in biodiesel. Biodiesel is a cleaner burning fuel produced from renewable resources such as soybean oil. It contains no petroleum but can easily be blended with petroleum. Biodiesel is typically blended at a 20 percent level or as low as a 2 percent level. It can be used in compression ignition diesel engines with little or no major modifications.

Biodiesel in its neat or pure form is biodegradable and non-toxic and it is the first and only alternative fuel to meet EPA's Tier I and Tier II health effects testing standards. Biodiesel has the highest Btu content of any alternative fuel, very similar to Number 1 diesel.

This year, EPA finalized regulations that would require reduction in sulfur content in highway diesel fuel of over 97 percent from its current level of 500 parts per million. Currently, the industry methods to decrease sulfur in diesel also negatively impact the fuel's lubricity. Biodiesel has no sulfur or aromatics and tests have documented its ability to increase fuel lubricity significantly when blended with petroleum diesel even as low as one percent.

While biodiesel offers environmental, energy and security and economic development benefits, it is not yet competitive in the United States on a pure cost comparison. Public support will be necessary to help the industry develop. Our culture and our policies are focused on petroleum products, most of which are imported. I do not want to imply that the soybean growers are opposed in any way to the use of petroleum products. In fact, agriculture is a major user of petroleum-based products. However, I would make the challenge that our country needs to have an aggressive energy policy that includes clean renewable fuels as well as significant domestic production of both oil and gas.

The current biodiesel market is relatively small, but has grown rapidly. Based on a recent national biodiesel board industry survey, approximately 5 million gallons of biodiesel were produced in fiscal year 2000, up from a mere 500,000 just a year ago. 20 to 25 million gallons are expected for fiscal year 2001. 100 million gallons of biodiesel requires 760 million pounds of feedstock including vegetable oils, recycled grease and animal fats.

If only oil were the feedstock used, it would take 100 million gallons of biodiesel and it would reduce the current surplus of 2.1 billion pounds of soybean oil by about one-third. Reducing the soy oil supplies by this amount would increase the U.S. oil price by an estimated 1.5 cents per pound, put 11 pounds of soy oil in a bushel

of soybeans, this would raise the U.S. price of soybeans by approximately 16.5 cents.

Mr. Chairman, even with low feedstock prices, biodiesel is not yet competitive with petroleum diesel. To be so assistance with market development and tax incentives are needed. Senators Dayton and Hutchinson have introduced tax legislation that would provide a partial exemption to the diesel fuel excise tax for those who use low blends. The amount of exemption would be three cents for diesel fuel containing 2 percent biodiesel, and 20 cents for those containing 20 percent or greater. This is similar to the ethanol exemption for gasoline that contains 10 percent ethanol. Biodiesel and ethanol are complimentary renewable fuels since they are sold in separate fuel markets.

Mr. Chairman, I think it is time and the timing is right for major proposals to promote the use of biodiesel. We look forward to working with you on this agenda and other issues of mutual interest. I will be happy to answer any questions at the appropriate time.

[The prepared statement of Mr. Metz follows:]

PREPARED STATEMENT OF ROBERT METZ, SOUTH DAKOTA SOYBEAN ASSOCIATION AND BOARD MEMBER, NATIONAL BIODIESEL BOARD

Thank you Mr. Johnson. I am Bob Metz a soybean corn, wheat producer representing the South Dakota Soybean Association. I also serve on the Board of Directors of the American Soybean Association and the National Biodiesel Board.

I appreciate the opportunity to come here today and talk with you regarding the need for a national comprehensive energy policy that includes a meaningful renewable fuels component for biodiesel and ethanol. South Dakota soybean growers appreciate your support and leadership in advancing the use of renewable fuels. You have been a strong supporter of biodiesel for many years, and we thank you for your commitment to the development of a viable biodiesel industry.

These are times when the prices for our commodities are at record low and energy and other input costs at record highs. This causes great concern across the countryside and producers are reviewing both options for reducing input costs and opportunities for increasing prices of what we grow.

While in the short term there is little we can do to completely alleviate this situation, ASA believes the development of a comprehensive national energy plan would help avoid these crisis situations in the future. We also feel strongly that a national energy plan should include a renewable fuels component that includes both biodiesel and ethanol and that is why we strongly support the renewable energy legislation you and Senator Hagel introduced last month, S. 1006.

We believe this legislation provides achievable goals for both biodiesel and ethanol while helping to decrease our dependency on imported petroleum. As I understand the bill, it requires a small percentage of renewable fuels, biodiesel and ethanol, to be incorporated into motor fuels. We believe this is a program that is flexible and user friendly.

While some may consider the objectives of the proposal ambitious, we feel they are achievable and reasonable. Our organization, as well as the National Biodiesel Board, believes these goals will create a significant market for biodiesel. We commend you and Senator Hagel for this bold and innovative step in moving our country to "homegrown" energy sources.

As you know, Mr. Chairman, for the last 8-10 years U.S. soybean growers have invested in the research, development and commercialization of biodiesel. Biodiesel is a cleaner burning fuel produced from renewable resources such as soybean oil. It contains no petroleum but can easily be blended with petroleum. Biodiesel is typically blended at the 20% level with diesel or at the 2% or lower levels. It can be used in compression-ignition, diesel engines with little or no major modifications. Biodiesel in its neat or pure form is biodegradable and nontoxic, and is the first and only alternative fuel to meet EPA's Tier I and II health effects testing standards. Biodiesel has the highest BTU content of any alternative fuel, similar to Number 1 diesel.

This year, EPA finalized regulations that require a reduction in sulfur content of highway diesel fuel of over 97% from its current level of 500 parts per million. Current industry methods to decrease sulfur in diesel also negatively impact the fuel's

lubricity. Biodiesel has no sulfur or aromatics and tests have documented its ability to increase fuel lubricity significantly when blended with petroleum diesel fuel even at one percent or lower.

According to Department of Energy tests, biodiesel has an 80% lifecycle reduction of CO₂ compared to petroleum diesel. This means that it offers the best opportunity for greenhouse gas reduction of any heavy-duty vehicle and equipment application. Biodiesel has the highest energy balance of any alternative fuel, which means that it offers some of the most promising benefits for conservation efforts. Additionally, biodiesel offers significant reductions in virtually all regulated emissions, and a 90% reduction in EPA-targeted air toxics. With the Chairman's permission, I will include additional information regarding the environmental benefits of biodiesel for the record.

Soybean growers began to invest in biodiesel almost a decade ago not because we wanted "our own" ethanol. Instead we were driven by the economics in the soybean industry. Soybeans are widely produced for the protein source in soybean meal. It is the plant protein of choice in the pork and poultry industries, leaving soybean oil as a valuable but abundant co-product. Because of large supplies of vegetable oils in the world market, we have a surplus of soybean oil, which depresses the price of the oil and the whole soybean.

Several years ago, ASA recognized that the traditional means of riding out a depressed market by storing surplus soybean oil until better times was not going to work during this situation. The industry had to do more. It needed to be proactive and aggressive in market development. Soybean growers through our state and national check off programs began investing in the development of new uses of soybean oil. Several of the products are widely accepted in the marketplace, such as soy ink, and others are just receiving acceptance such as biodiesel, solvents, lubricants and other fluids.

While biodiesel offers environmental, energy security, and economic development benefits, it is not yet competitive in the U.S. on a pure cost comparison. Public support will be necessary to help the industry develop. Our culture and policies are focused on petroleum products, most of which are imported. I do not want to imply that soybean growers are opposed in anyway to the use of petroleum products. In fact, agriculture is a major user of petroleum-based products. However, I would make the challenge that our country needs to have an aggressive energy policy that includes clean renewable fuels as well as significant domestic production of both oil and gas.

The current biodiesel market is relatively small, but is growing rapidly. Based on a recent NBB industry survey, approximately five million gallons of biodiesel were produced in fiscal year 2000, up from approximately 500,000 the year before. Twenty to twenty-five million gallons are expected for fiscal year 2001. One hundred million gallons of biodiesel requires 760 million pounds of feedstock including vegetable oils, recycled grease or animal fats. If only soybean oil were the feedstock used, 100 million gallons of biodiesel would reduce the current surplus of 2.1 billion pounds of soy oil by about one-third. Reducing soy oil supplies by this amount would increase the U.S. soy oil price by an estimated 1.5 cents per pound. With 11 pounds of soy oil in a bushel of soybeans, this could raise U.S. soybean prices by as much as 16.5 cents per bushel.

Mr. Chairman, even with low feedstock prices biodiesel is not yet cost competitive with petroleum diesel. To be so, assistance with market development and tax incentives are needed. Senators Dayton and Hutchinson have introduced the tax legislation that would provide a partial exemption to the diesel fuel excise tax to diesel fuel suppliers who use low blends of biodiesel. The amount of the exemption would be three cents for diesel fuel containing two percent biodiesel and 20 cents for blends of 20% or greater. This approach is similar to the partial tax exemption for ethanol, which provides a 5.4 percent exemption for gasoline that contains ten percent ethanol. Biodiesel and ethanol are complementary renewable fuels, since they are sold in separate fuel markets.

Of course, one of the first concerns with excise tax exemptions is the lost revenue to the Highway Trust Fund. We are very sensitive to the needs of the highway users. So, we are proposing to reimburse the trust fund with USDA's Commodity Credit Corporation (CCC). The cost to the CCC would be offset at least initially by the savings which increased biodiesel use would realize in the form of reduced outlays under the soybean marketing loan program.

Although it is my understanding the Hutchinson/Dayton bill does not have an official score, we believe it is a cost-effective investment. For example, if 100 million gallons of biodiesel were used under this program, it would be blended at two percent per gallon into five billion gallons of diesel fuel. At a cost of three cents per gallon, the cost of the program would be \$150 million.

Earlier in my testimony, I outlined how increasing biodiesel use would reduce soybean oil surpluses. Reduced soybean oil surpluses will result in higher soybean prices, and raising soybean prices in the marketplace would reduce CCC outlays under the soybean marketing loan program. If soybean price increases 13 cents per bushel due to increased demand for biodiesel, the cost savings on this year's estimated 3.0 billion bushel soybean crop would be \$390 million. The proposal will save more than two dollars for each dollar its costs.

Mr. Chairman, we think the timing is right for these major proposals to promote the use of biodiesel. We look forward to working with you on this agenda and other issues of mutual interest.

I will be happy to answer questions at the appropriate time. Thank you.

Senator JOHNSON. Thank you, Bob, excellent statement. And third on our panel is Kirk Schaunaman from South Dakota Farmers Union.

**STATEMENT OF KIRK SCHAUNAMAN, SOUTH DAKOTA
FARMERS UNION**

Mr. SCHAUNAMAN. Morning, Senator Johnson, members of the panel and others. I'm Kirk Schaunaman, I'm a member of the South Dakota Farmers Union and the National Farmers Union. I'm involved in a diversified grain and livestock operation near Aberdeen.

South Dakota Farmers Union has been actively involved in the promotion of ethanol for more than 20 years. Today our organization remains more than ever committed to the concept of renewable farm-based fuels.

I'm here on behalf of the National Farmers Union, 300,000 family farmer and rancher members to thank you for holding this hearing and to encourage you to continue your strong action on the establishment of a renewable fuels standard for motor fuels in the United States.

Farmers across the countryside find themselves faced with the dual crisis of low commodity prices and high energy costs. Your legislation, The Renewable Fuels for Energy Security Act of 2001, has the potential to deal with both problems at once. Your bipartisan bill introduced with Senator Hagel of Nebraska will provide the opportunity to more than triple the national demand for ethanol and biodiesel over the next ten years.

Let me say clearly at the beginning, South Dakota Farmers Union and the National Farmers Union wholeheartedly support your bill and other bipartisan legislation that you have cosponsored that will establish a renewable fuels standard for America and applaud you and Senator Hagel for introducing this forward-looking legislation.

As we would all agree ethanol and biodiesel are environmentally friendly alternatives to the MTBE in gasoline and high sulfur content in diesel fuel. We should look actively for ways to expand their use in the near and long term.

Aggressive demand policies are needed to improve farm income by stimulating investments by farmers in value-added processing facilities for ethanol and biodiesel. Let me assure you that family farmers here in South Dakota and elsewhere will make this investment given a strong and positive long-term outlook in terms of demand. And many of us have already made this investment.

As you know the ongoing ethanol versus MTBE debate in Congress concerns the relative benefits of reformulated gasoline and its

minimum oxygen requirement based in the Clean Air Act and the water contamination problems caused by MTBE. It also concerns the proper role for renewable ethanol as a clean fuel alternative essential for America's energy independence.

The RFG program required a minimum oxygen content in the gasoline sold in the country's most polluted cities was passed by Congress in 1990 as an amendment to the Clean Air Act. The most widely used oxygen additive at that time, MTBE, has caused serious contamination of ground and surface water in many States.

As a result several States have asked or have considered asking the EPA for waivers from the RFG oxygen requirement in order to rid their States of MTBE use and further contamination. We all know that ethanol is an environmentally sound oxygenate substitute for MTBE. As recently as June 12 the EPA denied the State of California's request for such a waiver and we support the EPA's decision on this important matter.

However, farmers recognize the need for a greater demand for ethanol use than just the oxygen requirement in the RFG program if ethanol production is to be part of the solution to low commodity prices and at the same time play a realistic role in America's energy needs.

The Government response to the MTBE problem, whether State, Federal or local, should assure the continued maximum growth for ethanol production. We think the future of this production expansion depends on the development of farmer-owner cooperative based ethanol facilities that will spring up throughout the Nation. Whatever legislation is passed it must account for the needs of both small and large producers of ethanol.

By gradually increasing the use of ethanol and biodiesel in the near term we can have a smooth transition from MTBE, spread ethanol and biodiesel use over the entire fuel supply, and avoid price hikes and disruptions of the gasoline market. This approach also provides a solid foundation for ethanol by shifting from its declining value as an oxygenate to its increased value as a domestic, renewable fuel that will reduce our dependence on foreign oil and most importantly boost farm income for the long term. Also, if we stay with the status quo and do not establish a renewable fuel standard there is less incentive for expansion of the gasoline—of the non-gasoline renewable fuels market such as biodiesel.

As a result of your legislation the importance that ethanol and biodiesel will play in the Nation's energy security will be heightened. Because of the expanded role renewable fuel will play in meeting our energy needs, National Farmers Union supports, in conjunction with the Renewable Fuels Standard, the establishment of a Strategic Renewable Fuels Reserve. This Strategic Renewable Reserve would provide on-farm commodity storage of corn and other renewable fuel production feedstocks reserved only for ethanol and biodiesel production. A Strategic Renewable Fuels Reserve would be similar to our already existing Strategic Oil Reserve to be used in time of emergency and solely for renewable fuel production.

The Strategic Renewable Fuels Reserve would contain an amount of farm commodities equal to one year's production of ethanol and biodiesel. These commodities would be designated only for

the production of renewable fuels at the direction of the Secretary of Ag. This reserve would remove a potential argument, critical of possible ethanol price spikes that, "we are one drought or one flood away from being a reliable supplier" for renewable fuels. Creation of this reserve would ensure a steady supply of feedstock for energy production in the event of production shortfalls or increased prices.

In order to stimulate the viability and growth of the renewable energy production sector, it is important that a limited commodity reserve be established to stabilize the availability of affordable energy feedstock that is isolated from the traditional, commercial agricultural market.

Senator, your legislation will help shift our energy consumption away from high priced imported oil and towards renewable energy products grown on our Nation's farms. This policy is compatible with our national environmental objectives; it will strengthen our rural economy and help meet our national energy requirements; and more importantly allow farmers to participate in value-added production of their commodities. We look forward to working with you on passing a Renewable Fuels Standard this year in Congress.

Thank you for the opportunity to testify today and I will be glad to answer any questions at the appropriate time.

Senator JOHNSON. Thank you, Kirk. Last on this panel is Mr. Paul Shubeck from the South Dakota Farm Bureau. Paul.

**STATEMENT OF PAUL SHUBECK, ON BEHALF OF THE
SOUTH DAKOTA FARM BUREAU**

Mr. SHUBECK. Thank you, Senator. I have nothing to say. Everything has been said and everybody did an excellent job. We have very similar testimony to all the testimony that was given today. I'm happy to say that we are in agreement with Farmers Union on this Senate bill and my daughter who is wanting to shop noticed that you very smartly separated Darin and I. She was afraid that we would be messing around up here or something. Darin and I are on an ethanol—we are directors, I'm a vice president of Great Plains Ethanol and a little bit about the ethanol industry.

We started, as Darin said, we have \$14 million, we started our fund drive for this ethanol plant and we have been getting a million dollars a day of producer investment and it shows how committed the producers are to ethanol. And in 12 business days we had over \$12 million from producers and so they are very interested in this.

And one fact that I thought I would bring out here is that for every dime increase in raw corn prices paid to the producer, farm program outlays are reduced a billion dollars a year. And so, you know, think of the tremendous impact that the ethanol industry has in rural America, but it also reduces that outlay that I think is going to get tougher and tougher to get urban Senators and Congressmen to vote for a farm bill and I think they can vote for energy and what we're supplying is energy and it's not a—we should view it as an energy program not as a farm program.

I guess the only other thing I can say is that I would encourage the Senate to put pressure on the commodity credit corporation to continue their bioenergy program and that was a producer incentive payment and the producer incentive payment was very bene-

ficial to these ethanol plants that were getting started. I mean, it's a tremendous boost.

Essentially, they are using a surplus product and they are giving a little bit of this product to the ethanol producers and it helps ethanol plants get started, it helps fund them, it helps banks look at that when we go for bank financing, it has a tremendous incentive for getting good loans for these plants.

So I guess that ends my testimony. My testimony is available over there and everybody said what I was going to say, so I don't think I need to. So thank you.

[The prepared statement of Mr. Shubeck follows:]

PREPARED STATEMENT OF PAUL SHUBECK, DIRECTOR, CLAY COUNTY FARM BUREAU

Mr. Chairman and members of the committee, my name is Paul Shubeck. I am a corn and soybean farmer from Centerville, South Dakota. I am a member of the Clay County Farm Bureau Board of Directors.

Our nation is on a path of continued and increasing dependency on energy. This energy comes in many forms, including oil, natural gas, liquid petroleum, electricity, and renewable energy sources. Due to limited refinery capacities and other problems, energy costs have become very volatile. During 2001, American families, industry and especially agriculture producers are bearing the consequences of this volatile price increase. The cost of manufactured inputs for use in agriculture production (such as fertilizer) has increased dramatically. Diesel fuel prices have increased on my farm from \$0.86 per gallon in late 1999 to \$1.35 per gallon in the spring of 2001. Prices for nitrogen fertilizer have increased \$15 per acre, or a 70% increase. The cost of LP gas for drying corn has increased 50%. USDA estimates net farm income will be reduced 10 to 13% over a 2-year period because of increased energy costs.

All this is taking place when raw prices for the corn and soybeans I grow are extremely low. Some feel the combination of low commodity prices and higher energy prices are a doom to the agriculture industry. I feel the energy crisis and the demand for clean air standards is a GREAT opportunity for farmers to lessen our dependence on government payments and at the same time, increase net farm income. We need a long-term energy policy that provides for reasonable and stable prices and supplies of energy. Agriculture must be a part of that solution.

As an example of how agriculture is prepared to be a part of the solution, let me explain how soy oil can be competitive when used as boiler fuel. In January 2001, when natural gas costs increased to \$8.05 per thousand cubic feet and #2 fuel oil increased to 95 cents per gallon, soy oil was 11.5 cents per pound. The cost to produce 1 million BTU of energy from natural gas was \$7.75; from #2 fuel oil was \$6.90; and from soy oil \$6.80. Continued research into efficient production of fuel from soy oil is ongoing, and I have no doubt that it will become even more competitive in the future.

South Dakota has the widest basis in the nation for corn and soybeans. These two commodities are the raw materials needed for the production of ethanol and biodiesel. Producers in South Dakota are investing in cooperative ethanol plants, giving them an opportunity to share in the profits from ethanol production as well as the sale of the by-product. The by-product, DDG (dried distillers grains) gives opportunity for the development of livestock feeding in South Dakota (as opposed to shipping it to the east or west coast). Local use saves energy use for shipping.

In areas surrounding ethanol plants, the increased local demand for corn has decreased the corn basis thereby yielding more dollars per bushel for producers. This also has a positive effect where LDPs are created. For every dime increase in raw corn prices paid to the producer, farm program outlays are lowered by about \$1 billion per year (according to the USDA). Today, the cost of biodiesel energy is very competitive. For every one percent of diesel market that biodiesel can capture, it is estimated that the demand for soybeans will increase by 250 million bushels. This could increase soybean prices up to 30 cents per bushel, again reducing farm program outlays where LDPs are paid.

The United States needs a national energy policy. Agriculture must play a major role in the production of energy, and stands poised to do so. Energy production is part of the solution to challenges we face in agriculture. Renewable fuels are cleaner burning than fossil fuels and a whole new supply of raw materials to make ethanol and biodiesel is grown every year.

Farm Bureau supports policies that maximize the use of biofuels. We support the national phase-out of MTBE. The EPA must not grant waivers to states attempting to opt out of the oxygen requirement in the Clean Air Act. It is clear farmers have the ability to supply fuels which meet the Clean Air Act requirements.

Mr. Chairman, I believe the current energy crisis is an opportunity for agriculture. It is an opportunity for farmers and ranchers to increase net farm income and decrease dependence on government farm program outlays. We can help decrease dependence on foreign energy sources. The American farmer provides safe and abundant food for his family plus 130 others every year. We are willing and able to provide clean energy, also.

Senator JOHNSON. Thank you, Paul. I have just a couple of questions for this panel before we move on to the next panel.

Paul, Kirk raised the prospect of the need for some kind of strategic ethanol reserve if we ramp up to the kind of volume of consumption that we envision through this legislation. There is the prospect of some years production levels may not be all that—may not be optimal, that we could have floods, could have droughts, whatever. Any thoughts about whether that is a strategy that addresses that issue or whether there's other things we ought to be doing that address some volatility in yields during a given year?

Mr. SHUBECK. Having a grain reserve? Is that what you're referring to?

Senator JOHNSON. Well, I think the thought was if not a grain reserve perhaps even an ethanol—

Mr. SHUBECK. A fuel—

Senator JOHNSON. A fuel reserve.

Mr. SHUBECK. A fuel reserve.

Mr. SCHAUNAMAN. Either that or have a grain reserve for one year's production and it basically is just to guarantee that we're going to be a guaranteed supplier.

Mr. SHUBECK. Sure. You know, typically I think the Farm Bureau has been opposed to reserves mainly because—because it has in the past held prices down, we felt. If it's directed towards ethanol use, I can't imagine why that wouldn't be a good idea. We know where it's going, we know that it has that ability to be used for fuel. I'm not a policy maker in the Farm Bureau but I think there's certainly a degree of reserve that would be helpful.

Senator JOHNSON. Something to continue to talk about and to think about.

Mr. SHUBECK. Sure.

Mr. SCHAUNAMAN. Let me add, Senator, that in no way do we want that part of—that thinking to hold up this bill.

Senator JOHNSON. It's a separate issue, but it's one that we—

Mr. SCHAUNAMAN. Absolutely. We've got to get this passed first.

Senator JOHNSON. Darin, there's some criticism about ethanol production from grain because there are people who believe that this is competition for food in this country. It's my understanding that making ethanol from corn leaves behind a very valuable feed co-product, excellent livestock feed. Can you share any thoughts with us about this and anti-food strategy that we're developing here or can we have ethanol production and livestock feed?

Mr. IHNEN. It's not an anti-food issue. A bushel of corn will create 2.7 gallons of ethanol. It will leave behind 17 pounds of dry distilled grain, that is a high protein source that could be fed to livestock and, who knows, someday it might be a food product? These plants that are being built are stainless steel so that's something

in the future that could be looked at, but we're taking the starch out of it and we've got a product left that can be fed to livestock and still have an energy from the corn as well as a food product.

Senator JOHNSON. Bob, in your testimony you talked about concerns soybean growers have regarding growing surplus vegetable oil. If we don't come up with a viable biodiesel market what do you think the expected trends are for vegetable oil stocks and what do you think that will do to already low soybean prices?

Mr. METZ. As you know, Senator, there's two major products that are produced when we crush soybeans, the meal and the oil, both very valuable. Currently the markets are driven by meal production, poultry and swine both, it's the protein of choice for raising those. So we just keep building this mountain of oil and long term I really see no way of working our way out of this, the feed that we need to, we've got over 2.1 billion pounds of oil out there.

The soybean industry has changed with South America coming on board. We used to be able to move that throughout the winter time, now that's their main season. So we really need to have an industry to use this oil and bring the price of soybeans back up again.

Senator JOHNSON. Senator Hagel and I in our legislation have not carved out specifically a biodiesel component in there with agricultural alternative fuels. Your industry is satisfied with that approach?

Mr. METZ. Yes, we are. We have no problem with that. We know we're kind of the new kids on the block here, most of us are also invested in ethanol plants, most farmers are corn and soybean farmers, so they are both there. This is a long-term plan and it didn't start—it is true that probably ethanol will take a bigger piece of the pie, but we feel very comfortable that if we're in there and especially if we can get some tax incentives that we will definitely be a major player in this also. Much of the pollution in large cities comes from trucks and that, of course, does not compete with the ethanol industry so we're very comfortable.

Senator JOHNSON. Well, I thank this panel for excellent testimony and this will be, again, part of the record. Your insights are very supportive and your respective organizations have played a key role in helping to craft this legislation and I appreciate that as well. So thank you to members of this panel.

We'll move on then to the second panel. That panel consists of Trevor Guthmiller of the American Coalition for Ethanol; Rodney Christianson of the South Dakota Soybean Association; Ron Alverson of the Lake Area Corn Processors; and John Twiss, Black Hills National Forest Supervisor. Come and join us.

Mr. SHUBECK. In the interim, Senator, I give you another hat.

Senator JOHNSON. All right. Well, we have competing hats here.

I appreciate, again, the members of this panel joining us this morning and their respective organizations which in turn have also played key roles in helping to craft legislation and to advance the interests of agriculture and alternative clean fuels in this country. We'll begin panel two with Trevor Guthmiller who is the executive director of American Coalition for Ethanol. Trevor.

**STATEMENT OF TREVOR T. GUTHMILLER, EXECUTIVE
DIRECTOR, AMERICAN COALITION FOR ETHANOL**

Mr. GUTHMILLER. Thank you, Senator Johnson. I appreciate the opportunity for providing testimony this morning on the advantages of establishing a renewable fuels requirement for our nation's fuel supply such as you and Senator Hagel have introduced.

It is significant that we are having field hearings here in South Dakota, that's quite an accomplishment to have an official Energy Committee hearing. We appreciate the fact to get some of the information out there on ethanol and biodiesel. So often when we talk about energy issues it's in the context of oil and gas and petroleum production and we want people to know that there's another side of this issue, a renewable fuel side. And I think the people of South Dakota as well as the people of the Nation want to see renewable fuels and renewable energy included in this energy debate, so we appreciate the opportunity to be part of it in that context.

As you know our Nation's dependence on imported oil has grown from just over 30 percent during the energy crisis of the 1970s to just under 60 percent today. This poses problems for our country's economic health as well as our national security. I'm going to use my opportunity this morning to explain why we believe that a nationwide renewable fuel standard is both good economic and energy policy for the United States.

The American Coalition for Ethanol is a nationwide, nonprofit membership association based in Sioux Falls, South Dakota. Our members include ethanol producers, rural electric cooperatives, public power districts, commodity organizations and businesses and individuals that want to see the ethanol industry grow and move forward.

The oil industry has made a point of trying to blame ethanol for the gas price increases throughout the United States. The facts, however, clearly show that ethanol is the solution not the problem.

In 2000, last year, about 1.6 billion gallons of ethanol were produced and sold in the United States. With a petroleum industry—refining industry that is running at 94 percent capacity according to the America Petroleum Institute, it would be hard for the petroleum industry to replace that large an amount of ethanol without having even more supply disruptions and gas price spikes. Contrary to the rhetoric, reducing or eliminating ethanol use would actually increase gas prices across the country.

As we can tell from the Sioux Falls gasoline marketplace, which is fairly competitive, ethanol actually helps lower the cost of gasoline to the consumer. The 10 percent ethanol blend has been consistently saving drivers 3 to 4 cents per gallon the past year. That is money that stays in the taxpayer's pockets and helps other segments of our economy.

The oil industry has tried to blame environmental regulations, including those that require cleaner burning fuels like ethanol be added to gasoline, for higher gas prices, but those regulations have been in effect for a number of years and it only seems to be in the last 2 years that there have been any concerns about their effect on the marketplace.

According to the America Petroleum Institute even though refineries across the United States increased total gasoline production

3.4 percent in April 2001 versus April 2000, the production of Midwest reformulated gasoline actually fell by 9 percent versus the previous year. The underlying cause of high gasoline prices is not “balkanization” or “boutique fuels,” it is a lack of supply because the petroleum industry has not expanded to meet the needs of their customers.

On the other hand, the ethanol industry has continued to expand in the past decade. While no new petroleum refineries have been built in the United States in the past 20 years, about 56 ethanol plants, essentially corn refineries, have been built across the United States.

Crude oil imports also continue to be a drain on our economy as well. In April 2001 crude oil imports hit an April high of 9.643 million barrels per day. April imports of gasoline and fuel blending components were up 20 percent in April as well, to 684,000 barrels per day. While it may be advantageous in the short term to just continue to increase the supply of oil and petroleum products, in the long term it is clearly in our country’s best interest to reduce our dependence on imported energy and diversify our energy portfolio.

South Dakota is particularly vulnerable to increases in energy costs due to the importance of agriculture to our economy. Agriculture is an energy intensive industry. Fuel and fertilizer costs are both very much tied to the energy market.

While energy costs have been increasing in South Dakota during the past years, the value of the corn that South Dakota’s farmers produce has been declining. Since 1995 corn prices have declined 50 percent in South Dakota. Meanwhile, just in the last year, average gasoline and diesel fuel prices have increased over last year’s already high level.

While gasoline prices have been rising and corn prices have been falling, South Dakota’s corn production has been increasing. In 2 of the last 3 crop years, South Dakota has produced over 400 million bushels of corn, much of which is exported out of the State.

This demonstrates South Dakota’s ability to be a source of increased energy for the United States. We can turn our ethanol into—our corn into ethanol and our soybeans into biodiesel. This will help us reduce our need for imported energy while at the same time boost markets for those agricultural products.

With little fossil fuel resources in the State and no refineries, South Dakota is forced to import virtually all the energy that is used in the State. It would make much better sense if we continued to increase ethanol production and use in South Dakota as a way to reduce the amount of money that is leaving the State to purchase energy. This economic philosophy should also be applied nationally.

It all comes down to analyzing our resources and goals. ACE believes that it is in the best interest of agriculture and our national economy to systematically reduce our dependence on imported fossil fuels and increase utilization of domestically-produced renewable fuels like ethanol and biodiesel.

Having an energy policy that does not address increasing our utilization of domestically-produced renewable fuels would keep us on the same road we are already on. The only real energy policy is one

that tangibly and measurably charts our course towards increased utilization of renewable energy products like ethanol and biodiesel. This is why we believe that a renewable fuel requirement is the best possible way to help the United States address concerns regarding our energy, economic, agricultural and environmental policies.

Taking the lead in this growth of ethanol production are farmer-owned co-ops. You've heard testimony this morning from a couple people involved with these projects. It is something we are extremely excited about. In Minnesota 12 of the 15 operating ethanol plants are owned and operated by farmer-owned co-ops. Of the three ethanol plants under construction in South Dakota right now, all are farmer-owned co-ops and more projects are in the works as you've heard as well.

In addition, three new ethanol plants in Iowa are under construction, all of which are farmer-owned co-ops. Just within the last year, two farmer-owned co-op ethanol plants opened in Missouri. So that is the segment of the industry that is growing, that is the segment that has the opportunity to provide the most economic benefit to places like South Dakota.

More projects will continue to be developed if we can show that there will be a growing market for ethanol. This will continue to stimulate agriculture and our rural economies by creating a market for agricultural commodities as well as creating rural economic development and expanding our rural tax base.

The best way that can lead to the further growth of the ethanol industry is to establish a renewable fuels requirement that would establish a framework for increasing ethanol use throughout the country.

There are currently three bills that have been introduced in the U.S. Senate and one in the House of Representatives that would create renewable fuels requirements. Our organization is supportive of all of those bills. All of these bills in the Senate have been referred to different committees. The renewable fuels bill introduced by Senators Hagel and Johnson has been referred to this committee for action.

We are extremely pleased by this bill and we would like to thank Senators Johnson and Hagel for their leadership. We also want to thank Senator Johnson for signing on to be a cosponsor of the renewable fuels bill introduced by Senators Tom Daschle and Richard Lugar in the Senate Environment and Public Works Committee.

Each of these bills would increase use by requiring that every year the oil industry use an increasing amount of renewable ethanol. Just like an investor would not want to put all of his money into one stock or one mutual fund, our country should not put all of its energy needs in the petroleum basket. We should diversify our energy mix and a renewable fuels requirement would help us do that.

A renewable fuels requirement would be a fair and equitable way to increase our ethanol usage. Essentially it would require that an increasing amount of ethanol be used every year, while leaving the details of its use to the petroleum companies, so that they can utilize it where it makes the most sense economically and efficiently.

Credit trading would also allow petroleum refiners to have a level playing field and it would reward those petroleum companies that choose to use more ethanol and biodiesel than required. We would strongly urge the Senate Energy Committee to incorporate the Hagel/Johnson renewable fuels bill into the energy policy legislation that it seeks to move.

We would like to see ethanol move from being considered just an oxygenate. First off, we would like to commend President Bush for denying California's application for a waiver from the reformulated gasoline program's oxygenate requirement. This is an important component of the reformulated gasoline program that has been acknowledged to reduce all types of pollution.

While ethanol's role as an oxygenate is important and beneficial, for the sake of the growth of this industry we need to expand ethanol's role to also include a value for it as a renewable fuel. As MTBE is banned and phased out around the country, as it has been here in South Dakota, ethanol's use should continue to grow. However even if California and the Northeast States would switch completely to ethanol and away from MTBE, it would still only double the market for ethanol. While this is positive and we would view such a scenario with great favor, we believe that it's time to define a role for ethanol that is beyond even a doubling of its use.

Our country should have a goal of at least tripling the use of ethanol in the next decade. From an agricultural standpoint we believe this is completely doable. We believe that such a goal would spur the development of the biomass ethanol industry as well, which would allow other States to experience the positive economic benefits of the ethanol industry that we in the Midwest are so familiar with.

Creating a renewable fuels requirement would also provide farmers and investors some certainty should ethanol's role as an oxygenate be impaired, such as if the Northeast States are allowed to opt out of the reformulated gasoline program, which they are currently allowed to do in 2004.

Congress needs to adopt a sound and long-term energy policy that reflects our national desire to reduce our dependence on imported fossil fuel. Unless we adopt a renewable fuels requirement we will find our country continuing down the same road of increased reliance on foreign energy that has gotten us to the point where we are today, with increasing energy costs to consumers and the national economy.

We would strongly urge Congress to adopt a renewable fuels requirement and we urge the Senate Environment and Public Works Committee and the Senate Agriculture Committee and the Senate Energy and Natural Resources Committee to strongly consider the renewable fuels bills that have been introduced, including the Hagel/Johnson bill, S. 1006.

Thank you for the opportunity to present my remarks this morning.

Senator JOHNSON. Thank you, Trevor. Second on our panel is Mr. Rodney Christianson, who is the CEO of South Dakota Soybean Processors. Rodney.

STATEMENT OF RODNEY CHRISTIANSON, CHIEF EXECUTIVE OFFICER, SOUTH DAKOTA SOYBEAN PROCESSORS AND MINNESOTA SOYBEAN PROCESSORS

Mr. CHRISTIANSON. Good morning, Senator Johnson. I would like to thank you for this opportunity to speak before you concerning S. 1006, Renewable Fuels for Energy Security Act of 2001. And both from South Dakota Soybean Processors and Minnesota Soybean Processors, thank you, Senator Johnson, for your leadership as the lead sponsor of this bill.

I represent not only South Dakota Soybeans Processors, but also Minnesota Soybean Processors and together I represent and work for 3,200 farm families in South Dakota, Minnesota, and Iowa. SDSP is completing our fifth year of operation and in that time we have processed and added value to 100 million—110 million bushels of soybeans and including our projections for this year's patronage, our board of directors will have returned \$15 million in cash to our original members of SDSP.

MSP is under an equity drive right now which we have \$12.5 million committed to build a new soybean processing plant located near Brewster, Minnesota. Our projection is to start construction in the summer of 2002 and start operations in 2003. Our environmental permit at this time is being modified to include the potential production of Soy Diesel.

As you're well aware, the Minnesota legislature was very close to passing a soydiesel mandate this year. While both SDSP and MSP is strong supporters of all energy bills for biorenewable sources and ethanol, we would take the position and encourage the Senate to have a biodiesel component.

Ethanol has a 20-year plus jump start on biodiesel and without that we see that the competitive advantage of us getting in would be a tough battle to get there so we would encourage that as part of your bill. Seldom do we see a bill out of Congress such as S. 1006 that not only addresses the key component of security for our energy needs in the United States and our dependence on foreign oil, but also provides our society an improved environment and an economic stimulus to rural economies.

While a lot of opponents may decry the higher price of biofuels or the lost revenues of taxes in the highway fund, we believe that a true accounting, a full cost accounting, that would include the hidden cost of foreign oil, the reduction in the farm program payments, and the environmental improvements will show that this legislation will be truly a lower cost to us as a society.

We all have experienced over the last couple years the high prices, either on heating our home or our cars as we commute to work, but I would like to also share to you that impact of a farmer-owned cooperative in processing our grain and converting it to products we can sell into the market. If we look at SDSP fiscal year 1999 compared to fiscal year 2001, which we're nearing completion, our energy cost per unit has more than doubled.

Of course, natural gas has been the lion's share of that increase. Cash patronage paid this year to our members, if we have energy costs of 1999 versus 2001 would be increased \$2.1 million or \$1,000 for our average member throughout SDSP. So energy cost is a real

hit, not only as we drive our cars, but in the prices of everything we buy and use throughout our area.

Because of this we're working very strongly with your—will be very strong supporters in other State legislatures that will look at that. While I'm in the soybean business and looking at the slogans such as, "The other white meat," versus our friends on the corn side, I'm going to keep my comments more to the biodiesel end, but again we're very strong supporters of the ethanol with that.

The United States is now roughly consuming 30 billion gallons of gasoline or diesel fuel annually. A 2 percent biodiesel blend would consume 4.4 billion pounds of vegetable oil. This represents about 14 percent of the U.S. domestic disappearance of fats and oil and as was mentioned by Mr. Metz this morning, we have an excess of 2.1 billion pounds of soybean oil in the United States.

I can report SDSP has ownership or storage responsibilities for about 8 percent of that oil with it. So we are strong supporters and we would like to, again, see that biodiesel would be a component in that area. As we look at increasing to 5 percent, and you brought up the question earlier of what happens to the food supply, if we look at a 5 percent content we would ask the question is, in 2015, where are we as farmers and producers going to consume or market our products? We now know Brazil has excess of 70 million acres that are sitting idle today. We believe that those acres will come into production and compete against the U.S. farmer over time, it's only a matter of time.

Also if we look today, soybean oil is certainly the oil of choice within the United States, representing over 80 percent of the vegetable oil, about 55 percent of the total fats and oil we consume in our food stuff, but at the same time palm oil on the world supply, soybeans only represents 22 percent, we'll be displaced as palm oil as the number one producer within the next decade.

Palm oil production increases over the next 15 to 20 years will be the equivalent of 45 billion pounds. Put that into the oil produced from our soybeans, we would need a crop of 4 billion bushels of soybeans. So in that perspective we believe it is important that the United States not only rely on increasing the demand to our producers by a level playing field and exports, it's more important that we do something towards domestic demand increase. Exports move slowly and it will not keep up with the productivity increases that we see in the U.S. farmer today.

Bioenergy—not only in that aspect, we would also recommend taking a look at bioproducts, replacing petroleum in that category. We would like to bring to your attention that South Dakota Soybean Processors has been working over the last 2 years to introduce soybean oil as used in the polyurethane market. A study funded by the USB shows that a potential of 1.5 billion pounds of soybean oil could replace the petroleum-based polyoil in the production of polyurethane.

So along with soydiesel and energy we would like to have the Senate look and legislature keep in mind that we can replace with the product grown by farmers and several other activities in the products that we use each day in that area.

With that I'm going to just touch lightly on the environmental aspect since other panel members haven't done that. Rough esti-

mates that we would put out on 2 percent biodiesel in the United States that we would reduce carbon monoxide emissions by 32 million pounds. We would reduce ozone forming hydrocarbon by almost 3.6 million pounds. We would reduce acid rain causing sulfur dioxide by 2.8 million pounds. Also it has been shown that the burning of biodiesel in relative to particulate matter or reduction of harmful and cancerous POMs, impacts to our streams, wildlife, and humans would be reduced by more than 80 percent.

And one item, one more plug for Soy Diesel because we've heard a lot from the ethanol guys, is that it has often been referred to as the liquid solar energy. Biodiesel when you look at the life cycle numbers and the carbon dioxide reutilization and going into the atmosphere used back into the soil, that it has a life cycle number of a balance of 3.2 to 1. Meaning that 3.2 units of energy are produced for every one unit of energy that is needed to produce biodiesel, one of the highest of the biodiesel areas.

So with that I would like to close my comments and certainly would like to answer any questions that you may have.

[The prepared statement of Mr. Christianson follows:]

PREPARED STATEMENT OF RODNEY CHRISTIANSON, CHIEF EXECUTIVE OFFICER,
SOUTH DAKOTA SOYBEAN PROCESSORS, AND MINNESOTA SOYBEAN PROCESSORS

Good morning. I would like to thank you Senator Johnson for the opportunity to speak before you today concerning S. 1006 Renewable Fuels for Energy Security Act of 2001. And a special thanks to you, Senator Johnson, for your leadership as the lead sponsor for this Legislation.

I am Rodney Christianson, Chief Executive Officer of South Dakota Soybean Processors (SDSP) and Minnesota Soybean Processors (MnSP). Together I work for and represent 3,200 farm families in South Dakota, Minnesota, and Iowa. SDSP is completing its fifth year of operation. In this time we will have added value to over 110 million bushels of soybeans and are projecting with this year's patronage allocation to have returned \$15 million in cash to our members. At the same time, SDSP has substantially increased its financial strength and has reinvested another \$10 million dollars in our Cooperative. MnSP is in the process of raising equity to build a 100,000-bushel per day soybean crushing facility near Brewster, MN. To date we have raise \$12.5 million in commitments from producers. MnSP plans to start construction in 2002 and commence operation in the summer of 2003. The environmental permit for Brewster is being modified to include the potential production of Soy Diesel. As you are aware, the Minnesota legislators were very close to passing bio-diesel legislation this year.

SDSP and MnSP are strong supporters of the committee's Renewable Fuels for Energy Security Act of 2001. We are also supporting S. 613, the Small Ethanol Producer Tax Credit Bill, W. 670, the Renewable Fuels Act of 2001 and S. 1058, the Bio-diesel Renewable Fuels Act.

Seldom do we see a bill out of Congress such as S.1006. While S. 1006 is drafted to address strategic security needs of the U.S. and our growing dependence on foreign energy, as importantly it provides society with an improved environment and a domestic economic stimulus to boost our rural economies. While opponents may decry an additional cost to the consumer for energy at the pump or reduced fuel tax revenues, we believe that a full accounting including 1) the hidden cost of foreign oil 2) a reduction in farm program payments and 3) environmental improvements will show that THE TRUE COST WILL BE LOWER.

Through out the U.S. we all personally have experienced the increased burden of higher energy prices, be it from heating our homes to just getting to work each day. A substantial portion of our families' budgets was reallocated to meet our basic needs. We have not experienced such an occurrence since the last energy crunch in the 70's & 80's. Agriculture processing is typically reliant upon energy to covert our grains to usable products and is a key component of our cost structure. Let me share with you what it has meant for SDSP's business and our members. SDSP's energy cost for fiscal year 1999 compared to fiscal year 2001 shows:

1. Per bushel our energy cost has more than doubled; natural gas accounts for the lion's share of the increase.

2. Cash patronage to our members will be \$2.1 million less due to increased energy prices in 2001 as compared to 1999.

Without any action the U.S. will continue to subject its residents and industries to foreign interest. We believe additional energy sources domestically are a key component and are crucial. Supporting domestic bio-renewable energy is a logical and important step for our long-term energy security. Because I am working in the soybean industry I will direct most of my comments to bio-diesel. I would stress SDSP's and MnSP's strong support for ethanol but, would also recommend as S. 1006 does, that all motor fuel would have a content requirement.

The U.S. consumes roughly 30 billion gallons of diesel fuel annually. A 2% bio-renewable requirement would use 4.4 billion pounds of vegetable oil. This represents 14% of the U.S. domestic disappearance of fats and oil. And today the U.S. has 2.5 billion pounds of soybean oil in storage. Certainly this legislative action would be important in increasing domestic demand for producers and reduce support needed in the farm program.

Increasing to a 5% bio-renewable content may raise concerns to some members. I would be more concerned where the U.S. is going to market its fats and oils without this legislation in 2015. Brazil has 70 million plus acres that sit idle today. It is only a matter of time before this land comes into production and competes against the U.S. farmer. In the U.S. soybean has been our oil of choice representing over 80 percent of the vegetable oil market and 55% of U.S. fats and oil production. On the world stage soybean oil constitutes only 22% of the fats and oils markets with palm oil to replace soybean oil as the leading oil consumed in the next 10 years. By 2015 world palm oil production will double to 90 billion pounds. Let me put this in perspective. Forty-five billion pounds of oil would require 4 billion bushels of soybean more than the total U.S. crop today.

Some members may have questions concerning bio-diesels' impact on diesel fuel ranging from power to engine reliability. In Minnesota, these questions were raised repeatably by the opposition. Those arguments are non-starters and at best, serve as smoke screens. Bio-diesel is well tested and ASTM standards have been established. Our friends across the Atlantic burned 250 million gallons last year compared to U.S.'s consumption of only 5 million gallons.

We believe that a key component missing in our current farm program is increasing demand for the U.S. farmer. Under the FAIR farm program, exports, by leveling the playing field, were going to provide the driving force towards increased demand. Instead, gridlock over granting the President Trade Promotional Authority "FAST TRACK" has kept the U.S. on the sidelines of many new trade agreements. Also, developing new markets is a slow process, which does not keep up with the increased productivity of the U.S. farmer.

SDSP and MnSP will be pressing Congress to explore efforts to increase the domestic demand in the upcoming farm program legislation. Bio-renewable energy or bio-renewable products replacing petroleum is an important step towards increasing domestic demand. One alternative that has resurfaced to improve farm prices has been limiting production. SUPPLY-DEMAND control. As sensible as this may seem to some, we believe it is an impractical move and one that would be detrimental to rural economies. Today the U.S. exports roughly 50% of its soybeans, 20% of its corn and 50% of our wheat. How many acres need to be taken out of production to have strong prices? Do we really believe these acres would not be planted somewhere else in the world? Would we close our borders to prevent cheaper foodstuffs from entering the U.S.'s artificially high priced market? For the sake of argument, let's assume this is the route we would choose to limiting production. While you achieve your goals of price support at the farm gate we devastate rural economies. Growing a crop will circulate an estimated \$200 per acre in the local economy. CRP payments will circulate maybe \$25-\$50 per acre. If Congress would set aside 30 million acres, rural economies would lose an estimated \$4.5 billion; 50 million acres—\$7.5 billion.

S. 1006 would not only keep American farms productively in service but would also provide opportunities for new business and jobs in rural America to help fill its energy needs. MnSP is including in its environmental permit application the production of bio-diesel. SDSP has been working over the last two years to introduce SoyOyl™ into the polyurethane market. Recent estimates show that soybean oil could replace up to 1.5 billion pounds of petroleum based polyol in the production of polyurethane products. The U.S. farmer is ready and able to fill the production needs that your bill will create.

On the environmental front, burning just a 2% biodiesel blend in U.S. diesel fuel will curtail harmful tailpipe emissions. Annually, it will

- Reduce poisonous carbon monoxide emissions by more than 32 million pounds.

- Reduce ozone forming hydrocarbon emissions by almost 3.6 million pounds.
- Reduce hazardous diesel particulate emissions by almost 2.8 million pounds.
- Reduce acid-rain causing sulfur dioxide emissions by more than 2.8 million pounds.

In its recently released low-sulfur diesel ruling for 2006 and beyond, EPA also states that certain compounds in diesel exhaust called polycyclic organic matter (POM) can have significant negative effects on reproductive, developmental, immunological and endocrine (hormone) systems in both humans and wildlife. These POMs are found in diesel exhaust as gases as well as in deposits on particulate matter.

EPA states that reducing particulate matter would reduce the health effects of harmful POM that ends up in lakes and streams. Not only does biodiesel reduce particulate matter as stated above, but burning just 2% biodiesel in the U.S. would have the following additional impact on the 600 million gallons of diesel fuel it would replace:

- Reduce harmful and cancerous POM impacts to streams, wildlife and humans by more than 80% compared to diesel fuel.

Biodiesel has been appropriately characterized as “liquid solar energy”. Biodiesel is produced from renewable sources grown and harvested each year such as soybeans in what experts call a closed loop carbon cycle—carbon dioxide is taken up by soybeans as they grow and is released back into the air when biodiesel is burned. In a joint study, the U.S. Departments of Energy and Agriculture found biodiesel reduces Carbon Dioxide 78% over its entire life cycle compared to petrodiesel and has a positive energy balance of 3.2 to 1 (3.2 units of energy are produced for every one unit of energy needed for biodiesel production, while diesel is 0.83 to 1). Therefore, burning 2% biodiesel in the U.S. would result in:

- Reducing Life Cycle Carbon Dioxide emissions more than 10 billion pounds annually.
- Extending the fossil diesel supply almost four-fold for every gallon of diesel replaced by biodiesel.

Thank you for your time and attention. I will be happy to answer any questions.

Senator JOHNSON. Thank you, Rodney. We’ll turn next to Ron Alverson, who is chairman of Lake Area Corn Processors. Ron.

STATEMENT OF RON ALVERSON, CHAIRMAN, LAKE AREA CORN PROCESSORS

Mr. ALVERSON. Thank you, Senator Johnson. My name is Ron Alverson and I serve as chairman of the Lake Area Corn Processors, a farmer-owned ethanol facility currently under construction 45 miles northwest of here near Wentworth, South Dakota. I appreciate the opportunity to appear before you today to discuss the effect of S. 1006 on the ethanol production of South Dakota. We support the provisions of S. 1006 because we feel they will create new opportunities for ethanol production in South Dakota.

Before I discuss the broader implications of this legislation I think it would be good to provide for the record some basic information about the type of value-added ethanol facilities that are being built in South Dakota and throughout the Midwest. You will note that these facilities are larger than those built during the past decade. Advances in processing, technology and the relentless pursuit of energy labor and capital cost efficiency in ethanol production have been the driving forces behind this increase in plant size.

In South Dakota, four of these 40 million gallon plants will be in operation during the next 3 years, with a total farmer producer investment of \$200 million. The additional ethanol demand created by your legislation will provide the opportunity for these farmer-owned facilities to be successful here in South Dakota.

Each of these plants will produce 40 million gallons of fuel per year and probably more as efficiency increases. Each will produce 120,000 tons of dry distilled grains per year. Each will provide a market for 14.3 million bushels of corn. Each will provide 33 quality new jobs with an annual payroll of \$1.3 million. And each of these plants will have about \$6 million in natural gas and electricity expenditures per year.

Over 25 years each of these plants will produce 1 billion gallons of clean burning ethanol. Provide a market for 358 million bushels of corn. A \$32.5 million payroll. \$1.2 billion in total expenditures.

There has been and continues to be tremendous interest on the part of farmers in investing in ethanol production. That is because ethanol is the single biggest value-added success we have in agriculture today. In areas where the corn price basis is large, like most of South Dakota, one of the ways farmers hope to increase net profits from their corn crop is to investment in processing.

The average corn price in South Dakota generally decreased in the past 6 years. In 1995, the average corn price was \$3.23 per bushel. In 1996, the average corn price decreased .92 cents per bushel to 2.31. In 1997, corn prices decreased again to 2.15. In 1998, it went down again to \$1.61. In 1999, the average corn price was \$1.54 per bushel. Last year, it went up a little bit to \$1.60, well below the 3.23 average corn price in 1995.

While there are many reasons for this erosion of corn prices, certainly one the main factors has been increase in per acre yields here in South Dakota as well as across the nation. For example, in the decade of the 1970's, South Dakota farmers produced an average of 52 bushels per acre per year. In the decade of the 1980's, we averaged 69 bushels per acre. In the decade of the 1990's, 92 bushels per acre. And the first year of this new century produced a statewide average of 112 bushels per acre. Corn supplies have become burdensome. Furthermore, I believe corn yields will continue to increase at an accelerated rate as well as a result of the biotechnological advances in corn hybrids, and improving production techniques.

It is our hope that ethanol production will provide a stable market for these new bushels of production and add value to our corn crop right here in South Dakota.

Ethanol production has also been rampant in the United States in the last few years and has huge potential to expand in the future. 1995 ethanol production was just under one billion gallons. In 1996, 1.05. 1997, 1.25 billion gallons. 1998, 1.3 billion gallons. 1999, 1.4 billion gallons. And 2000, 1.6 billion gallons of ethanol was produced in the United States. This sounds like a lot of fuel, but 1.6 billion gallons only represents 1.3 percent of the liquid fuel in the United States this past year.

Other markets for products produced by corn processors tend to be mature markets that exhibit relatively slow growth in recent years, while the ethanol market has doubled in the last 10 years. Because of these factors I believe a significant amount of new ethanol production will be in the more cost-efficient dry mill facilities like those I've described.

Farmers also know that the ethanol production can be synergistic with other farming enterprises like livestock feeding. The dry

mill ethanol production process is, only the starch of the corn crop is utilized. High value nutrients including all the protein oil and minerals are condensed in a byproduct, called the dry distilled grains. About 45 percent of the total value of the nutrients in the beginning bushel of corn remains in the DDG. DDG is a very nutritious animal feed that is known to work particularly well in dairy and beef cattle.

Additionally, animal nutritionists are finding that other types of livestock can also perform well on rations formulated with DDG. Thus increased ethanol production may not only have the effect of increasing energy security here in the United States, but also can bring together traditional value-added enterprises like livestock feeding with the new value-added fuel ethanol facilities. These type of innovative partnerships that bring together new with the old, provide farmers with opportunities to diversify their economic activity while maintaining agriculture as a core business.

As you have heard we believe your legislation will increase ethanol production from grain to nearly 6 billion gallons by 2011, with an additional 2.4 billion gallons from cellulose. That increases to more than 7.6 billion gallons from grain with an additional 7.6 billion gallons from cellulose by 2016. These production targets represent a staggering opportunity for farmers in South Dakota and throughout the Nation to invest in value-added ethanol production.

The provisions of S. 1006 will help create new opportunities for ethanol production in South Dakota and I thank you for the opportunity to testify here today.

Senator JOHNSON. Thank you. Next on our panel is Mr. John Twiss, Forest Supervisor out in the Black Hills National Forest. John, we've heard a lot from corn and soybean producers, occasionally when I go out West River they say, "What's all this alternative fuel stuff have to do with us?" John, thank you for joining us on this panel.

STATEMENT OF JOHN TWISS, SUPERVISOR, BLACK HILLS NATIONAL FOREST, FOREST SERVICE, DEPARTMENT OF AGRICULTURE

Mr. TWISS. Thank you for the invitation, Senator. It's good to be here, good to be over in this part of the State which I don't get over too often enough.

The Black Hills National Forest is one of 122 national forests in the system, we're in the Department of Agriculture. It is, as most of you probably know, in western South Dakota and eastern Wyoming and I think it's interesting moving from soybeans to corn and now we'll talk about wood a little bit and how that might relate.

But first I would like to talk just a little bit about our use of biodiesel in our fleet on the forest and we've had a pretty successful run as you know, Senator, burned about 20,000 gallons. We set this up in half of our diesel fleet to kind of compare it with the rest of the fleet that is just using straight diesel and did an evaluation here.

We've done this for 3 years now and we like just about every aspect of it and the two concerns we've had have been the increased cost of the soy oil which sounds like it probably may be resolved

now, and then the mixing of it and I think John and I may have solved the mixing problem last night.

But we're going to increase our diesel fleet on the forest by a third here and most forests in the Nation are doing this right now to increase the size of their fire fighting fleet. And so I think it's very probable that we'll probably use this in 100 percent of our fleet here starting this year and the price is where we want it. If we get the mixture issue solved so that it comes pre-mixed, I think that's what we'll probably do.

But probably one of the greater advantages that's just now becoming apparent to us is the environmental friendliness of this product. If you're in the Federal Government and you have to dispose or clean up diesel, gasoline, paint, it's just amazing what it costs. We're very cautious now about what we purchase just because we're just now becoming aware of what we have to do to dispose of these kind of products, so this is something that really fits well with where we want to go. The environmental friendliness of it and it should be a huge cost savings, particularly if we ever have a spill as I say.

The other area that we work on in the forest, Senator, that I think pertains to your bill and the administration has not taken a position yet, but—and that's in the area of wood ethanol which is now, I think, potentially becoming feasible and then biomass, the burning of wood products for electrical energy.

Most of the forests in the Western United States are overgrown right now, they badly need to be thinned, they are very fire prone. There is a tremendous amount of wood product tonnage out there on each forest with very little market for the small diameter stuff as well as the waste products on the ground and a number of the waste products that are coming out of the saw mills. We're currently financing two feasibility studies off our forest or with products that will come off our forest. One for an ethanol plant in either western South Dakota or eastern Wyoming, and the other one for an electrical generation plant, both using wood products from the Black Hills National Forest almost exclusively.

With the serious condition of our forests right now we are very much looking for ways to start this thinning program and be able to dispose of these products. Both of these two options appear to be viable ways to meet this need if we can make this thing economically feasible.

So I'll end my testimony with that and just plant that seed with you. I think that when you think about the fact that we have 122 forests out here, the Black Hills being one, and we have the potential of supplying those kinds of plants in our area, potentially I think the other forests have even greater opportunity. Thank you again.

[The prepared statement of Mr. Twiss follows:]

PREPARED STATEMENT OF JOHN TWISS, SUPERVISOR, BLACK HILLS NATIONAL FOREST, FOREST SERVICE, DEPARTMENT OF AGRICULTURE

Mr. Chairman and members of the Committee, thank you for the opportunity to appear before you today to discuss the Black Hills National Forest's experience with bio-diesel fuel.

On July 1, 1999, the Black Hills National Forest became the first forest in the nation to use B-20 bio-diesel fuel. This fuel, which we mix, consists of 20% soybean

oil and 80% diesel fuel. There are several advantages to using the B-20 mix including: decreased emissions and an increase in its cetane rating, which makes it a more efficient and cleaner burning fuel that is more favorable to the environment.

Since the beginning of this program, the Black Hills National Forest has used over 19,000 gallons of B-20 bio-diesel. The equipment has varied from dozers, motor graders, and heavy trucks that are used for construction and maintenance of our infrastructure, to lighter pick-ups used for firefighting and administration of the Forest. At no time during the last two years of use have we noticed any adverse effects to the equipment. Our scheduled maintenance has remained unchanged.

The only downside that we have noticed while using the bio-diesel fuel is that it costs approximate twenty percent more than conventional diesel fuel. I understand the cost of the soybean oil has decreased since our last purchase and this may translate into lower prices in the future. The Black Hills National Forest will conclude its pilot test at the end of this month and so far all results have been very positive.

This concludes my testimony and I will be happy to answer any questions you may have.

Senator JOHNSON. Thank you, John. Last on our panel here today is John Campbell. John I got to know when he was a high ranking official in the Department of Agriculture when I was in the House of Representatives, but he's currently vice president of Industrial Products and Government Relations with Ag Processing, Inc. John, welcome.

**STATEMENT OF JOHN B. CAMPBELL, VICE PRESIDENT,
AG PROCESSING INC.**

Mr. CAMPBELL. Thank you, Senator. Being the last person I kind of feel like there's not a lot left to say so I'll just try to address the points that maybe haven't been talked about by other folks.

You know about AGP, a lot of people only know of us as the largest farmer-owned soybean processing and refining co-op in the world, but our board really wanted to do more in the way of value-added and we jumped into the ethanol business in 1995 with a 30 million gallon plant that expanded to 50 million, and then in 1996 we completely lost our minds and got into the biodiesel business.

The farmers were investing millions of dollars in research and development and there wasn't a reliable reasonably priced supplier of biodiesel. So we talked our board into setting up a plant in Sergeant Bluff, Iowa, and we've been kind of on pins and needles for the last few years about whether that was a good idea, but thanks to you and others, the CCC bioenergy program has tremendously helped us with customers like the Forest Service because it's allowed us to make prices more competitive.

We have about 250 local co-op and regional co-op members who own our large regional, about 25 of those members are in South Dakota. So even though I'm not a native South Dakotan we have a lot of farm families who do rely on our patronage to keep the local co-ops viable.

Just a few points on the criticisms about this bill and others. You and Senator Hagel, Senator Daschle, Senator Lugar have taken a lot of heat because you promote an energy source that requires subsidies. And the people who make those arguments labor under the illusion that we have a free market in energy. It wasn't so long ago we had the Secretary of Energy going around telling OPEC ministers to get the price of oil up because \$9 oil was bad for the world economy. And then a few short months later we went around with tin cup in hand saying, well, \$30, we didn't mean to go that far. \$30 is too high, can you get the price down?

So we don't have a free market in oil and we shouldn't apologize for the incentives that we need. We think of these as playing field levelers. These are consumer incentives so that people can afford to buy our products in a market that's already heavily tilted towards oil and gas.

Senator Harkin recently released a report by the General Accounting Office that stated that the oil and gas industry received \$82 billion in percentage depletion deductions, \$43 billion through expensing of exploration and development costs, \$8.4 billion in tax credits for production of non-conventional fuels, and over that same period ethanol received \$11 billion.

So we don't have to apologize for those incentives. We're not anti-oil. We're pro-oil. We just want to make sure that there's room somewhere for renewables and it would be a crime for the Congress to report out a national energy strategy that didn't have something in it that is real for renewables and this bill is the most aggressive bill that I know of that's been introduced.

Just a quick note because we do have our foot in both camps, both the ethanol and biodiesel. We've been in this battle for over 2 years about MTBE, oxygenate, RFG, RFS, and it's kind of like the two immovable forces. The waiver has been denied, we're not going away, people like you have stood in the gap and said, they are not going to get the waiver. But likewise they have 54 members in the House, the Northeast has 18 Senators, they are not going to go away either.

We need to arrive at some sort of a consensus, and the Energy Committee, the Environment Committee, the Tax Committee, the Agriculture Committee, all have to have an integrated approach that settles this issue. And the reason it needs settled is because it's very difficult from our perspective to make investments in this industry not knowing if there really will be a market.

And in our view the excise tax exemption for ethanol kind of guarantees at a minimum you'll be a gasoline extender, but we've seen markets for gasoline extenders trade at 30 cent discounts to gasoline and that might work with \$2 corn, but it doesn't work with \$2.50 or \$2.60 corn, which is where we would rather see corn. So we need something else and the RFS, in our minds, is the answer.

Just quickly again to finish up. There's a lot of environmental benefits to renewables and those are all great, but they are not accounted for and they are not given credit in our current accounting. But what we do account for is our trade deficit and there's a recent draft report that came out from the DOE which talks about these costs and this report, quote, says, increasing the market share of alternative and replacement transportation fuels would have significant energy security and oil market benefits for the United States. Some of these benefits will occur even if the use of fuels is induced by regulations, subsidies or demonstration programs.

It goes on to say, if the United States were to achieve the 10 percent replacement fuel goal of the EPAC, oil prices would be reduced by approximately \$3 a barrel. At current U.S. oil consumption levels of 6.8 billion barrels, this would save us \$20 billion a year.

Keep in mind the ethanol program only costs 11 billion over, like, a 15-year period. Maybe it's a billion dollars a year, we could save

\$20 billion a year by doing this. While some people have criticized the Hagel/Johnson bill as being too aggressive, but the goals in this bill are only half of what the goals of the bill were in 1992 that was passed after the Persian Gulf war was fought. So I don't think they are unrealistic and just to conclude, we commend you, we hope you'll just keep the pressure on and get something done this year. Thank you.

[The prepared statement of Mr. Campbell follows:]

PREPARED STATEMENT OF JOHN B. CAMPBELL, VICE PRESIDENT,
AG PROCESSING INC.

Thank you and good morning Mr. Chairman. On behalf of Ag Processing Inc. and Ag Environmental Products LLC, I appreciate the opportunity to testify and commend the Committee for holding this hearing. We especially appreciate the efforts of Senator Hagel and you upon the introduction of S. 1006, the Renewable Fuels for Energy Security Act of 2001. I know your time is short and that you have many witnesses so I will highlight this testimony and ask that the complete text be entered for the record.

Mr. Chairman, you know about the many aspects of AGP but most people only associate AGP with the regional cooperative that crushes more soybeans and refines more soybean oil than any other farmer-owned cooperative in the world. While that may be nice bragging rights, our farmer and local cooperative manager Board of Directors wanted to go farther and do more.

Popular buzzwords in rural America today are "value-added" and "farmer-owned". Other than sounding nice, what do these phrases really mean? For our cooperative it means doing what we have always done but also striking out in new directions. In 1986 it meant building our first soybean oil refinery so that we could add value to soybean oil. Throughout the years it has meant expanding our overseas and domestic customer base. It has meant expanding plants and building new ones to keep up with the growing soybean and livestock industry. It has meant introducing the first and only component pricing program for soybeans.

More specific to this hearing, our Board decided in 1995 to build a grain ethanol plant in Hastings, Nebraska. That particular plant started out as a 30 million-gallon plant and has been expanded to 50 million gallons. A year later we jumped into the biodiesel market by building the first dedicated soydiesel plant in the Midwest at Sergeant Bluff, Iowa.

The preceding is given as background not to toot our own horn, but to let the Committee know that "value-added" and "farmer-owned" are not just cliches at AGP. We have put our money where our mouth is. Many in the soybean industry thought we had lost our senses when we started into the biodiesel business. There was no biodiesel industry. There were no customers. Nobody in the government had even heard of biodiesel. All there was back in the early 1990's was a small group of farmers in Missouri, a couple of academics, a couple of entrepreneurs and AGP.

Today, as you can see, things have sure changed. Biodiesel and ethanol are the flavors of the week. Renewable and green energy have gained credence as energy costs soar. America is reawakened to our reliance on energy and our vulnerability to supply and demand changes.

I am not here to claim that renewables can alter fundamental energy balance issues. I am here to say the renewables can make a difference. If we add up a lot of small differences—be they slightly larger domestic oil production, slightly larger refinery capacity, slightly more conservation and a small portion of the market reserved for renewables—we can begin the process of reversing the trend toward ever increasing dependence on unstable and sometimes hostile regions of the world for our economic well-being.

S. 1006 sets a goal of reserving 3 percent of the transportation fuel market for renewables in 10 years and 5 percent in 15 years. This might not sound like much at first. But consider that ethanol has been around since the 1930's and only accounts for less than 1 percent of the gasoline market today. As fuel consumption grows, 3 and 5 percent of those markets represent huge increases in ethanol and biodiesel demand.

The benefits to agriculture are obvious. More demand equals higher prices. Higher prices mean less government spending on price and income support programs. More domestic demand means less reliance on fickle export markets. More plants in rural America mean more jobs, more schools and more churches.

Critics will trot out the “mandate” argument and correctly point out the need to subsidize renewables. They will argue that these energy sources are not economic and that government is interfering with the market.

We must not shrink to these arguments. We must instead bring some reality to the debate. Do critics think that we have a free market in energy today? It was only a few short months ago that the previous Administration encouraged OPEC members to get crude oil prices up when they plunged to less than \$10/barrel. That same Energy Secretary was then sent around with tin cup in hand asking for OPEC members to get the price of crude down when they rose above \$30/barrel.

Do critics believe citizens have a choice in the Pentagon program to spend around \$9 billion per year defending the Persian Gulf supply lines? Have we forgotten that the Energy Security Act of 1992 was approved in the wake of the Persian Gulf War? The Persian Gulf War was fought because our “national security” was at stake. Read—we need the oil.

To the subsidy question: Yes, ethanol and biodiesel need a consumer incentive to compete in a marketplace that is heavily tilted toward oil and gas. This consumer incentive is a playing field leveler. The General Accounting Office recently released a report stating that the petroleum industry has received \$82 billion in percentage depletion deductions, \$43 billion through expensing of exploration and development costs and \$8.4 billion in tax credits for production of non-conventional fuels. For comparison, the ethanol excise tax exemption “cost” \$11 billion over the same study period.

Be assured that we are not anti-oil. We are pro-oil. We just want to make sure there is room in an already distorted market for renewables.

Mr. Chairman, a few concluding comments on the current ethanol and biodiesel situation. Both fuels rely on politicians like you for support. Absent that support our industries will crumble.

For nearly 2 years the battle has raged over MTBE, the RFG oxygen standard and ethanol. Many bills have been introduced in Congress—most aimed at giving one side or the other what it wants. Finally, a decision was made on the California waiver that, for a brief moment, seemed to settle the issue once and for all.

Not so. The state of California spokespeople say they are “reviewing their options” including a delay in their MTBE ban. The California Congressional delegation has reintroduced their legislation to grant California an oxygen waiver. Not to be outdone, one group is even challenging the right of California to ban MTBE in the first place. EPA officials have openly questioned the need for the RFG program when the Clean Air Act comes up for reauthorization. Some environmental groups go so far as to question the environmental benefits of ethanol.

Mr. Chairman, this is no way to build an industry. How can we be expected to make production investments when things are always so up in the air for renewables? Biodiesel does not even have an excise tax exemption. We are constantly relying on the good fortune of having a few powerful Members of Congress in the right place at the right time to keep renewables afloat.

The time has come to integrate renewables into a national energy strategy and set a course so that investors can, with confidence, build a renewable industry.

The petroleum industry, renewable fuels industry and environmentalists are going to have to work things out. We must forge a consensus to move forward. We must be willing to cross jurisdictional lines in Congress to forge a comprehensive policy. The Energy Committees, the Tax Committees, the Environment Committees and the Agriculture Committees all have a role to play in an integrated approach.

S. 1006 defines and reserves a market for renewables. Biodiesel will need a consumer tax incentive in order to take advantage of the legislation.

In the end it is our view that the justification and rationale for S. 1006 lies not so much in the environmental benefits of ethanol and biodiesel, which are many, but in the need to reserve a small—but growing segment of the transportation fuel market for renewables.

I would like to quote from a draft U.S. Department of Energy analysis on the Oil Price Benefits of Increasing Replacement/Alternative Fuel Market Share.

“Increasing the market share of alternative and replacement transportation fuels would have significant energy security and oil market benefits for the United States. Some of these benefits will occur even if use of the fuels is induced by regulations, subsidies, or demonstration programs.” Mr. Chairman, the DOE draft report states that there is a total of 3.6 percent of the gasoline market supplied by alternative and replacement fuels. MTBE accounts of 2.6 percent, ethanol 0.7 and all the others 0.3 percent.

Even these modest levels of alternative and replacement fuel uses are providing some energy security benefits.

- The present 3.6 percent market share of alternative/replacement fuels produces an approximate \$1/barrel reduction in oil prices. At current U.S. oil consumption levels of 6.8 billion barrels, this level of alternative/replacement fuels use results in a savings of approximately \$7 billion on an annual basis.
- If the U.S. were to achieve the 10 percent replacement fuel goal of the Energy Policy Act of 1992, oil prices could be reduced by approximately \$3/barrel. At current U.S. oil consumption levels of 6.8 billion barrels, this level of alternative/replacement fuels use results in a savings of approximately \$20 billion on an annual basis.

Mr. Chairman, the Energy Policy Act was passed just after the Persian Gulf War. It set out a goal of 10 percent petroleum displacement. However, it was only a goal. The bill fell short of actually setting policies to make sure the goal was more than just words on a piece of paper.

The Hagel/Johnson bill is about making good on the promise of 1992. Some will argue that the Hagel/Johnson bill sets unrealistically high targets. However, these targets are half the levels already approved in 1992. The difference today is that we are more dependent on foreign oil than ever. We owe it to ourselves and to future generations to get moving on the goal of freeing America from the clutches of cartels and the whims of dictators.

Senator JOHNSON. Thank you, John. Let me just ask a few questions of this panel. I would ask Trevor, one of the criticisms we hear about significant increases in ethanol as fuel or even as an oxygenate is getting it from the Corn Belt to California, getting it around the country, and we've sometimes run into criticisms about, how are you guys going to transport all this stuff? And we hear all the criticisms about the lack of pipeline suitability and so forth.

What are your views in terms of being able to produce, obviously we produce more ethanol in South Dakota that we can possible consume here and we want to produce a lot more than we can consume here, what are the prospects of moving this to other parts of the country or would you have to produce ethanol at the open marketplace?

Mr. GUTHMILLER. Well, I think the logistical and transportation issues will resolve themselves as demand spreads around the country. We now sell ethanol in Alaska in the winter time to help them meet their clean air program requirements and we get ethanol there pretty economically and pretty efficiently. We'll be able to get ethanol to California a variety of ways; rail service is crucial to this part of the country, and we've got to work for that, and that will be important to getting ethanol to California as well as other parts of the country.

Some of the ethanol production along the Mississippi and Illinois Rivers will be able to be transported via barge and ship to California where it will be off loaded at their refineries and terminals and shipped throughout the State of California by pipelines out there. We've worked with some of the petroleum companies out there to familiarize them with material compatibility and things such like that. So I don't think we'll have any problems taking ethanol from the Midwest and distributing it to whatever part of the country the demand is at.

Senator JOHNSON. For Trevor and Ron, either one of you on the ethanol side, we can burn up to about a ten percent blend right now with no reconfiguring of the mechanics of the vehicle; is that about right?

Mr. GUTHMILLER. Legally, that's the most that the EPA will allow to be blended with gasoline for general consumption is 10 percent. Technically, you can burn higher amounts.

Senator JOHNSON. What kind of penetration do we have in terms of gasoline station sales of an ethanol blend?

Mr. ALVERSON. Very good here in South Dakota, Midwest.

Senator JOHNSON. We are one of the leading States.

Mr. ALVERSON. But on both coasts it's pretty limited.

Mr. GUTHMILLER. We're strong in the Midwest, actually where we have a familiarity with the product and consumers accept it and prefer it in most cases. In other parts of the country it's used sometimes to meet their clean air requirements, Denver and Las Vegas, for instance, will use it in the wintertime. Chicago and Milwaukee use it all year long, State of Minnesota virtually every gallon of gasoline is ethanol blended. So it varies from region to region, but it is used in some cases in most every State in the Nation.

Senator JOHNSON. Recently there was some criticism in the national media about our incentives for the auto industry to develop dual use vehicles, that is, using ordinary gasoline or E-85, which is 85 percent blend, which does require some additional modifications, not enormous, but it does involve some modifications.

Turns out that the problem is not really E-85, the problem was there was not a single station in the entire west coast selling E-85, so you continue to have a little bit of this chicken and egg problem where we've got a product that is proven, but no one wants a vehicle if they can't buy the fuel and you don't want to create the fuel if there's no one to buy the product. So any thoughts about how we crack this?

Mr. GUTHMILLER. Well, I think we need to make sure that E-85 goes beyond just being a vehicle program incentive for the auto makers to produce vehicles that can run on 85 percent ethanol, but there also needs to be something done on the fuel side as well to spur the development of that infrastructure. It's essentially creating a whole new fuel product and getting it out there.

We've got E-85 pumps in, I think, six or seven towns in South Dakota right now. There's fifty towns in Minnesota with E-85 pumps, but problem-wise the people are on the east and west coast and as I understand it there's going to be probably \$2 million in appropriations coming out of Congress this year to help develop infrastructure for E-85 in places like California and that's, I think, part of what needs to be done to make sure that we make this transition from E-85 being just a vehicle program for the auto makers, to a fuel program. We make sure it carries over to markets for these corn producers as well.

Mr. CHRISTIANSON. If I may on that, Senator Johnson, as the technology, General Motors, Ford, Volkswagen, all were supplying ethanol run vehicles in Brazil in the mid-1980's, so the technology is there.

Senator JOHNSON. It's just not rocket science technology. Rodney, let me ask you on the soydiesel side of things, the EPA is requiring sulfur consent to come down radically in diesel fuel by 2007, I believe it is. What other strategies are available for diesel consumers other than to go to soydiesel? What are we competing with?

Mr. CHRISTIANSON. Well, certainly soydiesel provides the lubricity, and you have even made the comment soydiesel blended with ethanol in race cars shows tremendous lubricity brought to the top of the cylinder. Certainly the petroleum industry is going to have

their components out there that will be adding to the lubricity, so we're going to compete, I believe, against the petroleum industry, against the lubricity additive to diesel fuel that does not contain the same sulfur level as we have today.

Senator JOHNSON. Fair to say that the oil industry will always favor fuel strategies that they control entirely as opposed to—

Mr. CHRISTIANSON. The normal businessman would do that.

Senator JOHNSON. So it shouldn't raise any eyebrows or shock anyone at that. On the soydiesel side, it's a roughly 2 percent blend that's typically used, did I understand that?

Mr. CHRISTIANSON. And John may help out on that, but certainly the B-20 is approved as an alternative fuel, so I think in the United States today that burns about 5 million gallons of soydiesel a year ago, even though Europe burns 250 million gallons. Now a lot of that went into the alternative fuel that qualifies as alternative fuel for enpavement barriers and they don't have to go to the compressed gas and take the capital cuts with that. So we see it in those large fleets with that and then some government agencies have been working on it.

Senator JOHNSON. John, you talked a little bit of an initial problem you had with blending of biodiesel with your Forest Service fleet, you can't just buy it brought to your shops pre-blended, you have to blend it at the site? How do you do this, what's the problem here?

Mr. TWISS. Yeah, we've been mixing barrels of diesel with barrels of—well, barrels of soy oil with the diesel we get and John has said we may be able to get it pre-blended which makes it a lot more convenient, which means we can spread it throughout our different diesel tanks throughout the forest and we have our own mixer at one site there where about half of our diesel equipment is. So just more of a convenience thing, if we can solve it I know I could sell it a lot easier to our employees.

Mr. CAMPBELL. It's kind of a chicken or egg thing. If you don't buy very much then the fuel jobber isn't very interested in servicing a couple hundred gallons here and a couple hundred gallons there, but this summer, again because of the CCC program, we had tremendous uptake in the Midwest, South Dakota being one of them, for co-ops that would come in or independent fuel jobbers, they would come in with their tanker, fill up at our plant, they take that tanker, blend it off into a rack situation and then they would go from there and that's the kind of—we need those kind of volumes to get the efficiencies up so that the consumer isn't paying and messing with all these drums and fiddling around and that sort of business, but we're getting there.

Senator JOHNSON. John, I appreciate your observations on subsidy issues as well. Yes, we do provide some tax breaks on alternative fuels. On the other hand, the oil industry gets significant tax relief as you note in depletion allowances and production tax grants, not to mention the cost of keeping our fleet halfway around the world patrolling the oil flow from the Middle East among other places, and so I think the question is not that they are a free market and we are not.

We're trying to get to that critical mass of usage where hopefully we can minimize subsidies, but at the same time stay on a fair

level playing field with oil and that there's a lot of good public policy and reasons why we ought to be doing that, from the environment to balance of trade, as you know.

I also appreciate your observations earlier relative to a little bit of a chicken and egg problem in terms of willingness to invest in this—in the ethanol industry or biodiesel for that matter, that we're calling for a substantial ramping up of demand.

But unless there's some assurances to that, and it has to be a fairly long term kind of assurance, your board of directors is obviously going to be willing to do the good thing up so far, but it's going to get to be a point where they say, my gosh, with all this ethanol coming on line, how confident are we that there's going to be a market?

And I hope that this Senate legislation will create a framework where you and other investors, whether it's from a cooperative or whoever they might be, will be able to with some certainty say, yes, in fact, this is part of our national energy strategy, it's here to stay and we can make these very significant costly investments that are required for soy use in our ethanol.

I think it's amazing that we've had the response that we've had in terms of ethanol plant biodiesel investment given some of the uncertainties that are out there. But you do reach a point where if we're going to get to this massive use, doubling the use of ethanol and going beyond that, to get there and to have the investors willing to do that they've got to know that that demand is going to be there not just tomorrow but years on down the road and that's why I think, again, you can't do this transition, you can't break this chicken and egg problem unless you have Federal legislation which essentially sets out a fuel requirement saying, this is national policy, this is the way it is. And so again I applaud all of you in your work working with us to get us to this point.

Because we're running a little short on time let me thank this panel again for their contributions they've made with their testimony here, and for purposes of closure for this hearing I would like to invite anybody who has a comment or a question not just to me, but to any of the panel members of panel one or panel two that are still here, we would be glad to take those.

For people who have a point of view but haven't made it quite formulated in their head quite yet that would rather just submit a written statement, the record for this committee hearing will remain open for 10 days. So for anybody who would prefer just to share their observations with us or data with us, we'll leave it open for that amount of time. You can contact the committee directly, but the easiest thing to do would just to get it to my office right here in Sioux Falls or send it off to Washington and we'll see to it that it gets in the record.

With that, are there any questions or comments from the general public? Yes?

AUDIENCE MEMBER. What is the cost of ethanol at \$1.50 corn compared to \$3 corn?

Senator JOHNSON. How does the—how does the cost of ethanol correlate to the cost of corn basically?

Mr. CHRISTIANSON. Take your additional dollar and a half and divide it by 2.6 and you've got your increased cost.

Mr. ALVERSON. It would go up accordingly, so actually you take that number times .45 and that would be the increase in cost per gallon.

Senator JOHNSON. But does the viability of the ethanol industry depend on cheap corn? I mean, is that—

Mr. ALVERSON. It depends on the price of gas.

Senator JOHNSON. It depends on the price of gas. It would seem to be that one of the benefits of South Dakota in the ethanol side of things is that we turn what historically have been disadvantages into advantages in the sense of we're at the western end of the Corn Belt, we tend to have lower cost corn frankly, and in the case of California we're about the closest part of the Corn Belt to at least the west coast consumers. Which is contrary to what historically has been our problem, low cost and far from the consumers.

Mr. GUTHMILLER. The technology and efficiency in processing ethanol has also increased dramatically in the last decade. So the plants that we see now in places like Minnesota and South Dakota and Nebraska tend to be the most efficient, most economical, in terms of ethanol production as well. So that will hopefully allow for increased costs of corn to be paid to farmer producers as well as keeping ethanol economically viable.

Senator JOHNSON. What has been your experience in your area in terms of consequences on the price of corn per bushel for your members? Has it had an upward push on the price of corn?

Mr. ALVERSON. As far as what?

Senator JOHNSON. Well, in terms of the people who provide corn.

Mr. ALVERSON. For the plant? See, we're not going yet.

Senator JOHNSON. Well, but the projection would be—

Mr. ALVERSON. What we're hoping if you look at a long term average in terms of what's been traditionally what ethanol has been sold for and the traditional cost of corn over the last 10 years average, we're looking at about 50 cents per bushel to the price of corn.

Senator JOHNSON. Fifty cents a bushel isn't really—and that's a 40 million gallon plant?

Mr. ALVERSON. Right.

Senator JOHNSON. Yes.

AUDIENCE MEMBER. I wanted to ask you if your ethanol planning if it restricts any crops or vegetation or anything from it, no matter what they could make ethanol from, whether it's an ag product or whatever.

Senator JOHNSON. It's my understanding you can make ethanol from virtually kind of—

AUDIENCE MEMBER. Any ethanol?

Senator JOHNSON. Any biological product.

Mr. GUTHMILLER. Essentially, starch or sugar or cellulose.

Senator JOHNSON. And that corn is one of the most efficient, but there is rice and you can make it out of wood chips for that matter and obviously it requires some changes in the plant.

Mr. ALVERSON. Technology is in its infancy and currently the cost of production per gallon of ethanol is quite high out of cellulose, but with more technology and increases that are in design, things like that, it should be competitive.

Senator JOHNSON. Yes.

Audience member. I have a question for Trevor. With the increased focus on greenhouse gases in the world, is there an estimate as to how much ethanol helps the cycle of not releasing additional carbon dioxide into the air versus petroleum, seeing as we do just keep relocking that carbon into the plants versus releasing?

Mr. GUTHMILLER. That's one of the beauties of ethanol production versus fossil fuels, is essentially with fossil fuels we're taking the carbon out of the ground, combusting it and putting the carbon into the air, the greenhouse gases into the air. With ethanol why it's considered renewable is essentially we're using the energy from the sun to grow the corn, the corn recycles a lot of that carbon that's in the air and combusts some of it with the gasoline that you burn it with, but it becomes essentially neutral.

We've got a lot of that information that quantifies that on our website which is just www.ethanol.org and we have a button there called Reports and Studies. So I guess I would refer people who are interested in getting the details of how all that works to check out some of those reports and studies, but those have been reported by some pretty, very knowledgeable scientists and others that quantify how much that we can reduce greenhouse gases both using the 10 percent ethanol blend as well as using the 5 percent blend and they are quite significant.

Senator JOHNSON. This is an important issue and, in fact, the Senate Energy Committee is going to be taking up a hearing on July 24 focusing on climate change. One of the components of that climate change debate and hearing we're going to have is going to be the role of these alternative fuels.

AUDIENCE MEMBER. Senator, do you have someone from the EPA working with you on the, like, the revapor pressure, those type of things, that ethanol brings to a product?

Senator JOHNSON. Well, not directly, but we do consult—

AUDIENCE MEMBER. But you have a resource?

Senator JOHNSON. And try to work with them on those issues, right.

AUDIENCE MEMBER. Is there any standardization going on for the country so we don't have, like, 40 different kinds of product to choose from throughout the country?

Senator JOHNSON. Well, Trevor, in terms of ethanol, is there any standardization?

Mr. GUTHMILLER. Yeah, I guess when we look at fuel products we see conventional gasoline and we see reformulated gasoline and they all have their certain specs and those specs are pretty consistent throughout the country. We like the clean air regulations, we think that they make a lot of sense and we think that they have done what Congress said they were going to do and the EPA said they were going to do.

There's a lot of talk about these boutique fuels and balkanization, but in reality it's a lot of rhetoric. There's reformulated gasoline and there's conventional gasoline and both of them have to meet certain specifications, whether they are sold in Chicago or whether they are sold in Sioux Falls, they all have to meet those guidelines and the oil industry knows what those guidelines are and they've been able to, you know, understand them, use them for a number of years now.

So we think it's time to move away from the rhetoric of balkanization and boutique fuels and talk about an energy policy in terms of a national energy strategy that finds a role for renewable fuels in with a mix of fossil fuels that we're currently using.

Senator JOHNSON. Senator Bingaman, who is chairman now of the Senate Energy Committee has indicated that he wants to take a good look, hard look, at this whole fuel debate going on and see if there is a need for some additional streamlining or is it more a fiction than fact and so that is going to be part of what we're going to be looking at here this summer.

Yes.

AUDIENCE MEMBER. First of all, thank you very much for being the keynote speaker at Northern Growers Ethanol groundbreaking a week ago and I think we've covered a lot of ground here today. There's one piece of important legislation that hasn't been mentioned and that's Senator Carnahan from Missouri's piece of legislation to extend the excise tax abatement from 2007 to 2015.

This would be very, very important to the ethanol industry and we hope that that piece of legislation can pass too. And I want to say that it's good to see that there are a lot of my colleges from the South Dakota legislature here today and we're hoping that in the future the State of South Dakota can do a little more for the ethanol industry. Thank you.

Senator JOHNSON. A little side lobbying there, Jim, but thank you. I appreciate your leadership up there in the Milbank area. You're right, we do need to revisit this—an extension of the tax issue, again we got a little complication now because of CBO scoring and how much room is left for additional tax breaks and so that concerns me, but we need to do this.

We did extend it once, you need a fairly long window in order to have investors have a high level of confidence in what the climate is going to be and we need to keep that in mind. So I would hope that before this year is out that we can revisit the possibility of a substantial extension on that.

Yes.

AUDIENCE MEMBER. Senator, there's a third co-product from this plant that is CO₂ and I know Ron has done some work on that product and how it would also displace other energy. I would like to hear his thoughts.

Mr. ALVERSON. Actually it was suggested by a friend of mine that's a chemist that said, why don't you use the carbon dioxide to make some fertilizer? In the traditional fertilizer process hydrocarbons are broke to release hydrogen, and hydrogen is combined with nitrogen in the air to create anhydrous ammonia. If you treat that anhydrous ammonia with carbon dioxide you create dry urea, a nitrogen form of fertilizer.

If you can get the hydrogen from some other source, such as water with electrolysis, then you can use the carbon dioxide out of this plant to make urea. So in the future if wind generation, if electrical costs coming out of wind generator is competitive with hydrocarbon fuel, that might be an opportunity for it.

Senator JOHNSON. Good point. Anything else? Well, let me say again that the committee staff and my staff will be here, I'll be here for a short while for any further discussion people want to en-

gage in. I'm sure some of the panel members will try to be around for a bit as well, but I thank both panels for excellent testimony.

I think you've made a very significant contribution to an important debate that's going on. We're really reaching a point of major decision making in Washington, I think, this summer. I think this is going to be an important time and I think when we look back in future years I think this year is going to be a year where we made some fundamental choices about energy strategy in the country and I appreciate your contributions to that effort.

So thank you again. With that the committee hearing is adjourned.

[Whereupon, at 11:25 a.m., the hearing was adjourned.]

APPENDIX
ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

STATE OF SOUTH DAKOTA,
HOUSE OF REPRESENTATIVE, DISTRICT NINE,
Garretson, SD, July 5, 2001.

SENATE COMMITTEE ON ENERGY & NATURAL RESOURCES,
U.S. Senate, Washington, DC.

Attn: Democratic Staff

TESTIMONY SUBMITTED BY REPRESENTATIVE CLARENCE KOOISTRA (R-GARRETSON)

As state legislator from South Dakota I strongly recommend passage of the Renewable Fuels for Energy Security Act of 2001 as introduced by Senator Tim Johnson and Senator Chuck Hagel.

The piece-meal legislation introduced and passed by individual states promoting the use of ethanol may prove to be beneficial for the short term but as one views the big picture more needs to be done on the federal level.

The proposed legislation requiring all transportation fuel produced in the United States to contain a percentage of renewable fuel such as ethanol and biodiesel can benefit from studies resulting in Canada's recent development of the alternative fuel industry.

In summary, it is extremely critical that this legislation be passed not only for the rural economic development of agricultural states such as South Dakota, but it is a key component in complying with the United States "Clean Air Act" which satisfies the environmentalists of South Dakota and the nation.

Sincerely,

REP. CLARENCE KOOISTRA.

SOUTH DAKOTA STATE UNIVERSITY,
COLLEGE OF ENGINEERING,
Brookings, SD, July 5, 2001.

HON. TIM JOHNSON,
Hart Senate Office Building, Washington, DC.

DEAR TIM: South Dakota State University is positioned to conduct research and train professionals, such as engineers, microbiologists, food scientists and plant scientists, to work in the bio-based renewal fuels and bio-based products industry. A bio-based industry initiative has the potential to revitalize rural communities and bolster the income of the nation's independent farm families. As SDSU broadens its research, teaching, and Extension programs to include renewable bio-based fuel and energy and bio-based products such as lubricants, plastics, solvents, pharmaceuticals, cosmetics and building materials, new opportunities will be created for South Dakota's rural communities.

SDSU is ready to form multidisciplinary teams of plant scientists, engineers and others to address effective and efficient means to convert solar energy captured by plants to products that meet our energy and materials needs. SDSU has scientists that are ready to identify species, plant varieties, and develop plant production systems that can serve as feedstock for bio-fuels and bio-products. Since the beginning of time, the sun has been the ultimate energy source. That energy comes to us in renewable form through plant growth.

Just as one example, a tremendous opportunity exists to utilize byproducts from the ethanol industry to produce a wide range of products that are both renewable and biodegradable. Dry distillers grain provides an excellent ingredient for pet foods

because of its high protein and digestible energy content. The pet food market has rapidly expanded in the past few years. Bio-plastics from corn have an equally rosy outlook with uses in fibers, packaging, and coatings that could ultimately consume over 1 billion bushels of corn per year. Other organic chemicals have estimated markets that would require up to 750 million bushels of corn. Based on current product demand, a 10% market penetration of corn-based products would create new demand for 375 million bushels/yr, which approximates South Dakota's annual corn production.

Agriculture is the most important engine that drives the economy of South Dakota. The opportunity to produce energy for the nation will add fuel to South Dakota's economic engine.

Sincerely,

VAN C. KELLEY, *Department Head,
Agricultural and Biosystems Engineering.*

STATEMENT OF HON. JOHN THUNE, U.S. REPRESENTATIVE FROM SOUTH DAKOTA

Thank you for the invitation to testify to the Senate Energy and Natural Resources Committee on the current energy crisis. I apologize for not being able to attend, but appreciate the opportunity to submit a statement for the record.

In early June, I hosted two energy forums in South Dakota. Because of our state's dependence on both agriculture and tourism, it was important for me to hear from South Dakotans on the challenges they are facing in this crisis. More importantly, I was interested in hearing their solutions. A common theme in both of the forums was the need for a domestic energy source and incentives for citizens to invest in domestic energy sources. I have introduced two bills, H.R. 2423 and H.R. 1636, to help with these two goals.

H.R. 2423, The Renewable Fuels for Energy Security Act, would reduce our nation's dependence on foreign oil, while supporting renewable fuels such as ethanol or biodiesel made from soybeans. We need to tackle our nation's dependence on foreign oil now, so we have a bright future, nationally and a strong economy in South Dakota. We can begin to do this by increasing the demand for our homegrown energy supplies and helping our farmers at the same time. H.R. 2423 is designed to increase the demand for renewable fuels by creating a national fuel standard by gradually increasing the market share for renewable fuel to 2 percent by 2008, 3 percent by 2011 and 5 percent by 2016. It would not be a gallon by gallon mandate. Senators Chuck Hagel and Tim Johnson introduced the bill in the Senate, and I commend them for their efforts.

H.R. 1636 makes changes to the current small ethanol producer tax credit in order to provide for a greater incentive for farmers to invest in ethanol cooperatives. H.R. 1636 allows ethanol cooperatives to pass the tax credit down to its investors. In addition, it changes the current 30 million-gallon capacity limit to 60 million gallons. This change is needed especially in South Dakota where most of the newer ethanol plants are being built to handle 40 million gallons of capacity.

I would like to applaud the Bush Administration for their recent decision to deny California a waiver out of the oxygenate requirement in the Clean Air Act. The state of California will need approximately 580 million gallons of ethanol to replace MTBE, representing an additional 250 million bushels of grain and adding more than \$1 billion to a depressed farm economy. This is great news for South Dakota farmers and for reducing our nation's dependence on foreign oil. Ethanol is South Dakota's greatest value-added success story, and I am happy that the Bush Administration is supportive of our state's agricultural economy.

Thanks again for the opportunity to testify. I look forward to learning more from today's hearing.

STATEMENT OF DOUGLAS A. DURANTE, EXECUTIVE DIRECTOR,
CLEAN FUELS DEVELOPMENT COALITION

The Clean Fuels Development Coalition appreciates the opportunity to provide testimony to the Senate Energy Committee on S. 1006, the Renewable Fuels for Energy Security Act of 2001. Two distinguished members of this Committee, Senator Johnson of South Dakota and Senator Hagel of Nebraska, have authored this important legislation that would create a long-term, sustainable demand for ethanol and biodiesel.

Our Coalition has considerable experience with this issue having been involved in federal and state fuel quality programs for the last 15 years. Our membership

includes ethanol producers, state agricultural organizations such as the South Dakota Corn Utilization Council, U.S. automobile manufacturers, and several other design and technology development firms. CFDC testified before this Committee in 1989 in support of a year-round oxygen requirement as part of the reformulated gasoline formula. We did so with the objective of providing a sufficient market assurance that would result in plants being built. We were concerned then as we are now that a seasonal approach to using ethanol is insufficient to grow the industry.

Clearly, there was an intent on the part of the authors of the Clean Air Act to marry energy policy objectives with an environmental program and the reformulated gasoline formula provided that opportunity. The oxygen requirement in reformulated gasoline and the wintertime carbon monoxide program did in fact create ethanol demand. During the early part of the 1990s, ethanol production increased by nearly 500 million gallons in response to Clean Air Act requirements. Despite the now impressive industry total of nearly 2 billion gallons per year, ethanol production continues to be a very small part of the motor fuel mix in the United States and ethanol production remains a far cry from what it could be. The significant returns to the U.S. Treasury, the benefits to rural economic development, the boost in demand for agricultural products, the reduction of greenhouse gases and other harmful pollutants, and the reduction of oil use are all benefits that are directly attributed to the use of ethanol.

The question your legislation poses, and offers as a challenge, is why not get more of these benefits? The simple answer is there is no reason why we should not strive to double, triple, or even quadruple ethanol production so every area ethanol now contributes to is enhanced even more. No other program on the horizon offers such a path for growth that a renewable requirement such as S. 1006 would provide. In fact, relying on reformulated gasoline alone is a declining market. Current ethanol usage in the United States consumes more than 700 million bushels of corn. The program as outlined in this legislation would utilize nearly 2 billion bushels by the year 2007, effectively tripling demand for the agricultural products used to make ethanol. The challenge, however, is to determine how this is best accomplished.

Ethanol is faced with an obstacle unlike any other commodity in the world faces in that it is sold into a market dominated by its competitors. Ethanol is not sold directly to consumers but rather sold to the petroleum industry whose product is being displaced. It is practically a conflict of interest for petroleum companies to voluntary purchase ethanol which is the reason for the creation for the partial excise tax exemption. This exemption is designed to make ethanol more attractive financially which is a key factor in overcoming this unusual and difficult situation. The other key part of this puzzle may lie in the legislation being discussed here today and that is essentially to require renewable fuels, such as ethanol, to be part of our fuel mix. Since we have repeatedly established it is in the interest of the United States to achieve the benefits ethanol provides, then making such a requirement a matter of law should not be a difficult decision.

There has been some confusion on the part of the media, the public, and even some Members of Congress with respect to the addition of oxygenates like ethanol to gasoline and how that impacts price and supply. Further confusion on the origin and actual presence of "boutique" fuels has caused us to lose sight of several fundamental factors. The first of these is that the addition of ethanol, or any nonpetroleum product, into the gasoline pool extends gasoline supplies. We repeatedly have heard that price spikes and periods of high gasoline prices are due to refinery limitations or other problems related to lack of supply. Adding ethanol extends that supply.

Going back to my previous observation that ethanol is sold into a market owned by its competitor is a disincentive to create such a supply extension. Therefore, this legislation is quite warranted. Many would argue that such manipulation of the motor fuel mix needs to be left to the so-called "free market." At CFDC we do not believe a free market exists with respect to petroleum products and it is extremely appropriate for the U.S. Congress to make the kinds of market adjustments we need to meet our overall policy objectives.

There are numerous precedents we can look at from all facets of our society that reflect this value, whether it be Buy American provisions for U.S. content in defense acquisition; small business preference or minority business set-asides; equal employment opportunity programs; and handicapped provisions. These are all adjustments the Congress has made because if left to their own devices, the free market would not have done these things which Congress deemed to be in the public interest. Establishing a program under which renewable fuels would have the certainty needed for private investment dollars to flow is not only justified in my view, but even incumbent on you to enact.

One of the other issues we continually hear about is the threat of ethanol or other oxygenates increasing the price of gasoline. This has been a particularly strong battle cry from the State of California which has continually opposed the use of ethanol yet they continue to have a nearly insatiable thirst for petroleum products. Some of the most expensive gasoline in the country is in the San Francisco area where there is no oxygen requirement. In Chicago where ethanol was being used as an additive in a tightly controlled reformulated gasoline recipe, prices were also lower than San Francisco. Therefore, neither ethanol, nor MTBE or any other outside product can be blamed for those high California prices.

A final thought with regard to supply and price is the General Accounting Office study on the *Impact of the Alcohol Fuels Tax Incentive* conducted in May 1997 (GAO/GGD-97-41). This study concluded that the net effect of these incentives was to "increase the production of ethanol, which may cause a small decrease in the price of a gallon of gasoline." The study also confirmed a position of the American Petroleum Institute in 1990 that the presence of ethanol in the motor fuel pool reduced the price of gasoline by 0.27 percent.

Ethanol is a unique issue in that it crosses the boundaries of agriculture, energy, and environment and for that reason may take thinking that is truly "outside the box" in order to come to a conclusion that works for all parties. This bill is a great attempt at such thinking by creating a requirement that is truly based on energy needs. Unlike environmental requirements which have to be aimed at particular areas in order to produce results, energy benefits accrue to everyone whether they take place in Boston or Los Angeles. Whether continued environmental requirements involving oxygenates are appropriate is a matter clearly beyond the jurisdiction of this Committee. While we strongly believe in the oxygen requirement—and have been the most staunch proponent of that requirement of any fuel organization in the United States—we also want to look at providing flexibility if possible in order to meet the needs of all parties. As we have analyzed this legislation, it would result in a significant ethanol demand over the next 15 years based on a percentage requirement of the motor fuel pool which is then adjusted for BTU content. According to our analysis, the bill would create a market for 4.4 billion gallons of ethanol by the year 2006 and gradually increase by .2-.3 percent through the year 2016. Given the fact that we produce 2 billion gallons today which took 20 years to accomplish, some would view this as an aggressive program. On the other hand, I suggest to you that given the inconsistencies of our policies with regard to ethanol (and I specifically refer to repeated attempts by Congress to repeal the very incentive they established), it is miraculous we produced any at all. Therefore, having an established, clearly defined program such as is proposed through S. 1006 in place, we would provide an incredible window of opportunity for sustained growth.

Another element of this legislation we like very much is the fact that a renewable requirement allows ethanol (and other renewables) to flourish in all their forms. While the traditional method of ethanol usage is in 10 percent blends, this bill would also incentivize E-85, dedicated (100 percent) ethanol cars, fuel cells, oxy-diesel, biodiesel, and even ETBE.

I have attached to our testimony and would like to request inclusion in the record information previously submitted to the *Congressional Record* by our good friend and your colleague, former Senator Bob Kerrey of Nebraska. Senator Kerrey recognized the potential contribution that ETBE could make to our motor fuel mix from an environmental and supply standpoint and shared this information with his colleagues. We remain very interested in the use of ethanol as a feedstock for ether production rather than methanol and believe it has significant advantages over methanol-based ethers in terms of water contamination. ETBE is a high octane, low vapor pressure method of using ethanol that combines with natural gas liquids. With potential volumes of up to 22 percent, ETBE could make a significant contribution to energy security and be an important part of the mix that could ultimately result from legislation such as S. 1006.

In summary then, Mr. Chairman, we believe a renewable oxygen standard is appropriate and necessary. It recognizes the approaches we have taken in the past have simply failed and for us to create a meaningful supply of renewable transportation fuels, we simply must require their presence in the motor fuel pool. In so doing, we should create as much flexibility as possible and incentivize all forms of renewable fuel usage which would be the case under this legislation. Ethanol has proven to be an easily integrated motor fuel component and presents no unique problems to our motor fuel system. Given the complexities of the environmental, agricultural, and energy implications of such a policy we recognize the need to fashion together, a program that will provide the many benefits that ethanol has to offer.

Thank you very much and I hope we have future opportunities to work with you on this important legislation.

STATEMENT OF ORIS SWAYZE, WILMOT, SD

Besides excessive taxes and excessive spending there are other ways governments can cause an extortion of wealth from our economy. Lack of an energy policy has left SD and the nation's energy consumers with no choice other than paying the price fixed by a concentrated oil industry. Leaving energy policy to the magic of the market place has left the U.S. energy consumers at the mercy of a few petroleum companies and a king's influence on OPEC. The greatest generation won WWII. This generation has put much of what they fought for at risk because we basically cannot produce enough liquid energy from domestic resources to drive our 4WD pickups and our Cadillacs to the casinos. The U.S. imports 85% of our liquid fuels. Our last energy crisis we were 35% dependent on imported oil resources. The U.S. has limited the development of alternative energy supplies because at least in theory the magic of the market place (along with the king of Saudi Arabia) determines our energy policy. Our new secretary of energy and others have commented that our dependence on imported oil is dangerous. Expensive would be another term describing our dependence on imported oil. Nuclear weapons and missile defense systems will do little for national security if this nation's imported oil supplies are disrupted. Military intervention costs lives and is a symptom of a failed energy policy.

States have a role in deciding national energy policy. Minnesota requires 10% ethanol in all gasoline. Both Minnesota and Nebraska support the expanding renewable fuels industry through a producer payment more generous than the up to \$1 million/year/plant SD producer payment. This year SD will again debate the wisdom of maintaining a two cents gal. tank inspection fee on SD imported oil products. The tax would be dedicated to expanding renewable fuels production utilizing SD ag resources. SD can join other states and begin to put some competition in liquid fuels markets. 700 mg of petroleum products are used annually in SD and the tank inspection fee raises approximately \$14 million. Currently 90% of those funds go to water development. Why do we tax energy users to develop water projects?

It is important to put our future SD energy/ag policy in some perspective. This year the oil industry fixed the gasoline price spike at approximately fifty cents/gal and essentially extorted \$350 million from SD petroleum consumers. The energy value of our 400 hundred million bushel corn crop was not recognized extorting approximately another \$400 million from the SD economy. Because we have chosen unit trains over local energy production basis has widened to record levels. The recent 20 cent additional widening of the basis extorts \$80 million annually from the SD corn producer. The opportunity to utilize the superior energy production feed co-products to expand beef and dairy production will ultimately surface as our greatest lose.

We have hope as SD farmers and other entrepreneurs invest in innovative energy production facilities. Meanwhile the SD legislature risks our energy and ag future by engaging in uninformed debates challenging the wisdom of using ethanol in state owned vehicles, the wisdom of following the successful Minnesota model and requiring 10% blends in all SD gasoline, and they also debate the wisdom of maintaining the SD 2 cents/gal tank inspection fee on imported petroleum products and dedicating those funds to expanding SD renewable energy production. Surely our legislative leadership can do better. It is little wonder that nearly every first grade class in our SD education system is smaller than the graduating class.